VENEREAL AND GENERATIVE DISEASES,

BY

M. K. HARGREAVES, M.D.

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VENEREAL DIS

INCLUDING

Disorders of Generation,

SPERMATORRHŒA, PROSTATORRHŒA,
IMPOTENCE AND STERILITY
IN BOTH SEXES.

By

M. K. HARGREAVES, M.D.

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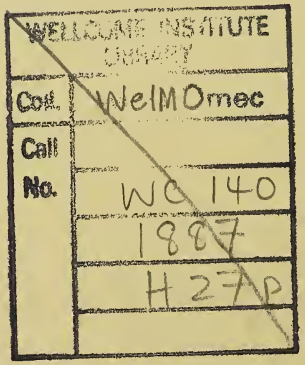
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Preface.

This work has been written with the primary intention of bringing, in a practical and concise form, before the senior student and general practitioner, information on a most important branch of medical science, which unfortunately receives far too little attention and study during the usual curriculum. The importance of a rational and scientific basis for the treatment of those common, but painful and often most intractable, maladies cannot be over-estimated.

In my endeavour to condense the material at my command within the limits of the present

treatise, my chief difficulty has been to avoid prolixity, and yet give a clear and brief summary of the most important and practical points of the literature on this class of disorders, and of my own experience, so that any casual omission must be set down to my desire to save the reader's time.

M. K. HARGREAVES, M.D.

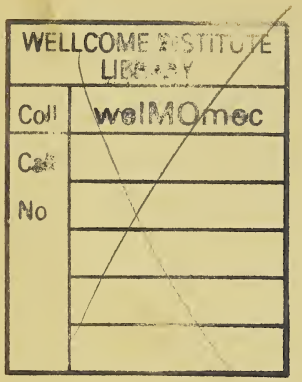
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PART I.

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VENEREAL DISEASES.

Chapter I.

GONORRHŒA.

More commonly called the clap, is a specific, purulent, inflammation of the urethra, sometimes affecting contiguous parts, as the rectum ; also, by contagion the eye, and by infection the fibrous tissue of the joints, causing gonorrhœal rheumatism.

It is caused by contagious matter of some kind, by impure sexual congress, *i.e.*, it is a specific inflammation.

Blennorrhagia is a much better name for this disease than gonorrhœa, as the former signifies a flowing of mucous or pus, while the latter signifies a discharge of semen. It has also been called "Brenning" or burning, or as the French have it "Chaudepisse," meaning scalding water ; but it has been known as clap from a very early period.

Until Ricord's time syphilis and gonorrhœa were confounded together. He, in 1832, described them as two distinct diseases, and showed that a person may suffer from both diseases at the same time.

The exciting cause is impure sexual congress, the predisposing causes may be found in those who are of a lymphatic or nervous irritable temperament, who take on disease readily; also persons in bad health, or weakened from any acute or long illness, those suffering from intemperate habits, fatigue, sexual excesses, masturbation, or having had a previous attack, the passing of bougies or catheters frequently; in fact anything which weakens either the person constitutionally, or the urethra.

After exposure to the contagion, the *initial* symptoms may show themselves anytime for twelve hours to as long as six days; in the majority of cases it is on the fourth day. The earlier the onset of symptoms after exposure, the more severe is the attack going to be. The principal signs are congestion of mucous membrane of urethra, followed by itching and tickling in canal, and then a slight degree of swelling of the lips of meatus urinarius, which stick together. After this there is slight smarting pain on making water, then the foreskin becomes œdematous or swollen with water and the penis is enlarged. At this stage we have rigors or distinct shiverings, dragging and discomfort in groin, aching pains in groin and back, and disagreeable

sensations in urethra, with a slight sticky discharge, and there is a sense of heat and fulness about the anus. All these symptoms constitute the initiatory stage.

The second stage is the development of the inflammation, when the patient gets as bad as he is going to be. There is a copious yellowish green discharge of pus or matter from the urethra, becoming darker as the disease progresses, and when very acute the lymphatic glands on penis and in the groin are swollen and the skin over them red and shiny. The constitutional symptoms are now well developed; there are hot flushes, cold shivers, thirst, and general feverishness. The penis is painful to touch, especially over the anterior portion of the urethra and about the glans, because only the first inch of the canal is affected at present. If micturition is frequent, it is a sign that the inflammation has passed backwards towards prostatic portion of the urethra. Then as the products of the inflammation may leave deposits in various parts of urethra, the stream of water on micturition may be twisted in a cork-screw fashion. There are also frequent and violent painful erections, the penis being drawn down like a bow; this is termed chordee, and is owing to a deposit in the tissue of the corpus spongiosum, which prevents its enlarging in the same ratio as the corpora cavernosa during erection; or the muscular fibres surrounding the urethra may contract spasmodically, and thus prevent the corpus spongiosum lengthening equally with the corpora cavernosa. This stage of the dis-

ease may last from a few days to three weeks or longer. It is in this stage that we may have abscesses, stricture, ulceration, or orchitis (inflammation of testes); in fact, it is the most violent period of the disease, and produces all the signs and virulence by which it is recognised. Abscesses of the urethra may burst either internally or externally—generally the latter—into the perineum.

The next stage is the period of decline, when the acute symptoms disappear, pain subsides greatly, and the discharge lessens, and in the majority of cases there is nothing left except a slight viscid exudation called gleet, which is noticed chiefly in the morning. It is caused by a chronic inflammation of the urethra, either about half an inch on floor anteriorly (fossa navicularis), or in membranous portion near bulb of the urethra, or in prostatic portion ; more rarely it may be caused by a stricture, wart, or relaxed condition of the canal chiefly near the sinus pocularis. Sometimes it is simply a kind of sweating of urethra from want of tone in the mucous membrane.

On examining the places with the endoscope (an instrument something like a speculum), we see where the gleety discharge comes from, and may observe red patches, where the mucous membrane seems to be absent, and in its place an abraded surface.

At the outset of the disease, it is always the anterior part of the urethra which is affected, and it is easily

cured, if proper treatment be at once resorted to, but, if not, the disease creeps along the urethra and invades the neck of the bladder, and sometimes even the bladder itself. Or it may cause *prostatitis* (inflammation of the prostate gland), and by continuity of tissue may pass along the ejaculatory ducts to the vas deferens and ultimately implicate the epididymi and the testes with their coverings. Also, by contact with the discharge, the foreskin may become inflamed, and the folds of the prepuce agglutinated together in front of the glans penis; when the foreskin cannot be pushed back easily, it is called *phimosis;* on the other hand, the foreskin may be fixed behind the glans, and there forming a constriction produce *paraphimosis*, which, if not relieved, will cause acute inflammation and sloughing.

When the surface of the glans is inflamed, and causes much pain on moving the foreskin over it, it is called *balanitis*, and this is generally accompanied by inflammation of the inside of prepuce—posthitis. These are all complications of gonorrhœa. In describing the treatment it will be best to take a simple case of the disease first, and the complications as they may arise.

The patient should be kept on a light milk diet, and allowed plenty of ripe fruit and vegetables, avoiding salt meats, and strong alcoholic drinks. Indeed it is best for the time being to be a total abstainer, or if through the exigencies of society, he feels almost com-

pelled to take something, let it be one of the lighter kinds of wine, or else a little spirit mixed with a large proportion of soda, potash, or lithia water. But it is infinitely better not to take any; instead, let him drink very freely of other fluids such as barley water, linseed tea, and ærated waters; also occasionally a cooling purgative draught, like Epsom salts, half an ounce in combination with either saltpetre (nitrate of potash), or a little senna; and as a drink during the day two teaspoonfuls (two drachms) of nitrate of potash in a quart of linseed tea or barley water. Dissolve the salt in the decoction, and take a wine-glassful several times a day.

It is of importance to bathe the part frequently, and to refrain from all sexual excitement, or violent exercise. From the time the first symptom appears, the penis and scrotum ought to be supported by a suspensory bandage. You must not let the testicles hang down, or feel their own weight; they must be kept constantly elevated.

Along with the cooling drink a mixture, something like the following may be taken:—Spiritus etheris nitrosi, two drachms; liquor ammoniæ acetatis, four drachms; vinum antimoniale, one drachm; sweetened water enough to make six ounces in all, of which the dose is two tablespoonfuls every two hours. This treatment will often effect a cure if begun early. But generally it is after the initiatory stage has passed

that a person thinks of consulting a doctor, and then though the treatment mentioned is useful, something more will be needed.

I am quite aware that some practitioners have tried to cure the disease at this second stage, by what they call the abortive treatment, which attempts to cut the disease short in a day or two. They use for this purpose strong injections of powerful caustics, and give at the same time large doses of copaiba and cantharides. This method is very tempting, and holds out great inducements to immoral gentlemen, who wish to hide their sexual proclivities and the painful results ; but it is rarely a success. On the contrary it very frequently only dries up the discharge for a short time, and afterwards it causes most intractable organic strictures to form. It is even not altogether free from a fatal tendency, so that the results of this treatment might be much more serious than the disease itself. What is known as the systematic or rational treatment is by far the best, as in it we treat the causes of irritation and fever, and counteract their effects.

During the acute stage, when the case generally comes under treatment, the patient must first have a hot bath, remaining in the bath a considerable time, also take purgative doses of Epsom salts, or Seidlitz powders frequently ; wear a suspensory bandage, and a piece of lint or calico over end of penis, and changed frequently to keep the discharge from irritating surrounding

tissue, and to avoid soiling the underlinen. Wash the glans penis and foreskin frequently, great cleanliness being observed. Avoid stimulants, and smoke little or not at all ; stimulating food, sauces, and made dishes are dangerous, but the patient can have abundance of fruit, fish, farinaceous food, and frequent draughts of water in the ærated state or Apollinaris, also mucilaginous drinks ; not too much tea or coffee, no asparagus, sleep on a moderately hard mattress or spring-bed with but few bed-clothes, and just before lying down plunge penis into *hot* water, and sponge the parts ; this prevents to a great extent painful erections at night, and also makes micturition more easy.

It is during this stage that copaiba and drugs of that nature do harm ; therefore they must not on any account be given. A saline diaphoretic should be given frequently, and fresh infusion of buchu drunk *ad libitum*. A mixture containing potassœ bicarbonate, two drachms ; spirit of nitrous ether half an ounce ; tincture of hyoscyamus, two drachms; camphor water to make eight ounces. Two tablespoonfuls to be taken every three hours. This is very useful for the scalding during micturition ; or frequent doses may be given of the tincture made from the bark of the poplar or the quaking aspen. This is also of great benefit in the gleet stage.

For the *chordee*, which is so troublesome in the night time, the patient should not have any food for at least

two hours before going to bed (which should never be a feather one), should lie on his side, and have the room well ventilated. If necessary insert a suppository of camphor and opium in rectum, after sponging penis with water as hot as he can bear. A good soothing night-draught of camphor with tincture of lupulin, or a pill of camphor and henbane may be taken.

It is also a good plan to use simple warm water injections to wash out the urethral canal; and this treatment ought to be continued until almost all pain on making water has ceased.

If the discharge is thin and watery, white, afterwards turning to a greenish hue, and the feverish symptoms have subsided, it is indicative of the chronic or gleet stage, which is very troublesome, and often tedious to cure. It is now that the patient requires careful guidance and studious attention. It is therefore the wisest policy for him to place himself unreservedly under the care of a competent and fully qualified medical man. Recourse may now be had to copaiba and cubebs, but the former of these, although a valuable remedy, is apt to cause a skin eruption, and also causes a well-known smell in the breath, which will often give his friends timely notice of what he is suffering from—at least they will judge so by his taking the drug, and not unfrequently copaiba causes great nausea and sickness. Oil of yellow sandal wood resembles copaiba in its action on the mucous membrane of the

urethra, and is less apt to disagree with the patient. Cubebs may be taken three times a day in teaspoonful or one drachm doses. Infusions of any of the following herbs or plants are beneficial—uva ursi (bearberry), buchu, caulophyllum thalictroides (squaw root), geranium maculatum (crane's bill), eriodictyon Californicum, hamamelis virginica, hydrastis canadensis (golden seal), irisin (blue flag), juglans cinerea (white walnut), piper methysticum (kava kava), populus tremuloides (bark of poplar), and many others that are officinal in the U. S. Pharmacopœia. Most of the above can be had in the form of tincture or extract.

The value of tonic medicines should by no means be lost sight of, as I have often known cases where a person has been under quite proper treatment as regarded the local disease, and yet the gleet continued, but as soon as the patient was put on a course of tonics, with a good allowance of nourishing food, the gleet soon disappeared.

Great cleanliness and frequent washing is necessary, and the patient should carry about a supply of lint or calico two or three inches square, to frequently wipe off any matter which collects on the glans and foreskin.

If there is any active inflammation copaiba and cubebs are decidedly injurious, so also are astringent lotions, when used as injections. In gleet we must pay most particular attention to local remedies, as

injections, &c. The syringe used should be small holding from half an ounce to an ounce, and have only a slight bulb at the nozzle. Whatever injection is used, it is better to micturate first, so as to wash out all discharge lodging in the canal, and then inject up a syringeful of simple tepid water to cleanse the raw surfaces of sore ; fill syringe next time with the injection and insert it only a quarter of an inch in the urethra, or the nozzle may cover the anterior raw surface in the fossa navicularis, and thus not do much good. After insertion press the lips of the urethra against nozzle from side to side, not from above and below, so as to distend the canal with the fluid, and hold it in for some seconds, pressing down the piston with some force, in order to send the fluid as high up as the bulb of the corpus spongiosum.

There are a vast number of different substances used for injections ; most of them are useful, but whatever injection is used, it should not cause much pain ; if it does, then it is too strong, and ought to be diluted. One of the commonest injections known is made with sulphate of zinc, others with alum or acetate of lead. The old and favourite Parisian formula contained sulphate of zinc, acetate of lead, tannic acid and opium, in distilled water. It is often a good plan to add to some of the injections a sedative extract or anodyne solution, such as henbane, belladonna, or liquor atropiæ, but these must only be employed under the direction of the medical attendant. Of sulphate

of zinc, copper, or iron about one grain to the ounce of water is quite strong enough at first. You may increase it to two or three grains afterwards. A very good injection indeed is a teaspoonful (one drachm) of solution of permanganate of potash in six ounces of water, gradually increasing the strength as required. Of acetate of lead or sulphate of alum about three to five grains is the proper proportion. Oak bark in solution, port wine and water, corrosive sublimate, in weak solution, iodine in water, chloride of iron, aloes, in fact almost any astringent might be tried, but nitrate of silver never should, as it is very dangerous. Powders were once much used, such as bismuth and oxide of zinc, but there was much difficulty in introducing them into the urethra. The best injections are those which have antiseptic properties, and destroy the germs or minute organisms which are present in the discharge. For this purpose we use permanganate of potash (from $\frac{1}{4}$ to $\frac{1}{2}$ grain to the ounce of water), or corrosive sublimate, a very weak solution, and the sulpho-carbolate of zinc. After the gleet has apparently been cured, the same treatment, with the injections, should be continued a short time, as I have known the disease return by neglecting this precaution, or the patient may take cold, or begin drinking beer and spirits too freely or too soon, and, as the urethra is a weak place, it is bound to show itself again there. If, after you have followed the treatment carefully and regularly, there still remains some

slight but persistent gleet, then it is probable there is a slight stricture which is the cause of this, and must be treated by bougies and other appropriate remedies for stricture.

Chapter II.

COMPLICATIONS.

If there are unfortunately complications as a result of gonorrhœa, or neglect in following out the specified directions, we must treat them as they arise.

Chordee, I have already spoken of in describing troublesome and frequent erections.

For painful micturition, or difficulty in making water, make use of hot baths, drinking freely of alkaline or mucilaginous fluids, and taking tincture of the bark of the poplar in water. If this does not relieve, the patient had better be examined for stricture.

Balanitis, or inflammation of the surface of the glans penis, and Posthitis, or inflammation of inner surface of the prepuce, are generally coincident. They are both easily cured by keeping the discharge frequently wiped away, and by drawing the foreskin forwards, and injecting tepid water between the foreskin and glans penis several times a day.

Paraphimosis is when a tight foreskin has slipped behind the swollen glans, where it forms a constriction, and sometimes the glans become enormously swollen and congested, accompanied with excruciating pain. The foreskin must be brought back over the glans as soon as possible; ice may be applied for an hour. After well oiling the glans, grasp it between fingers and thumb, press out by manipulations as much of the œdematous fluid as possible, until the whole is reduced enough to allow the foreskin to be brought over. If there is great difficulty in doing this, and considerable pain is caused thereby, it is the best plan to put the patient under chloroform or other anæsthetic, so as to overcome all voluntary movements and spasm ; also if the medical attendant finds that he cannot bring the foreskin forwards, he can cut the constriction easily and reduce it, applying simple water dressings before the patient becomes conscious.

Phimosis is the opposite condition of the last. Here the foreskin is too narrow, and so far in front of the meatus urinarius, that it cannot be drawn back, or allow of the glans being attended to properly. When the patient has too long a prepuce, he should bathe and frequently syringe inside it with warm water, and as well as he can, insert a small plug of lint inside to keep the orifice open, and also to soak up the discharge. By thus keeping the parts as dry as possible, and pressing the foreskin against the plug until the œdematous fluid has receded nearer to the

glans, the phimosis will be soon cured, although in extreme cases circumcision may have to be resorted to.

Abscesses.—These are often due to the inflammation of the mucous follicles and lymphatic glands, having run on to suppuration. The abscess commonly met with is the sympathetic, *Bubo*, and generally this is only on one side.

Treatment.—You should soothe the part, and enjoin strict rest, or very little exercise, if any, and apply poultices. If this is not convenient put on a pad of cotton wool, which can be kept in its place by strips of plaister, and as soon as the bubo becomes soft in one place, it should be opened with a fine lancet. Less frequently, abscesses arise about the glans or bulb of the urethra ; in the latter situation they sometimes point in the perineum, which causes great difficulty if urine finds its way there, for then blood poisoning is likely to be set up, but early opening of the abscess will probably obviate dangerous complications. Sometimes in inflammation of the follicles suppuration follows, and as the gleet gets cured the orifice of the follicle becomes closed, and thus the pus being encapsuled, as it were, becomes a suppurating cyst, and feels like a little hard rolling body underneath the penis. Such a cyst should be opened from without; it will heal up by granulation.

Sometimes the parts become very much congested ;

rupture of one or more of the small blood vessels may take place. The bleeding can be stopped by cold water, ice, or such styptics as tincture of steel, and Friar's balsam (Tincture Benzoin Co.), diluted if injected and using pressure, but the result may be a stricture, or indurated patches, which are often permanent.

Prostatitis, or inflammation of the prostate gland, is not at all an uncommon sequelæ, and is moreover a severe complication. Fortunately it is often arrested early, when it is only at the congestive stage, but even this gives rise to much swelling and to painful micturition and defecation, and through being enlarged, presses backward into the rectum, and on the anus, causing a weight and fulness at the seat, with a constant desire to go to stool. If it should run on to suppuration, the gland being surrounded with a strong capsule, the pus has a great difficulty in working its way to the external surface of the body, and it may thus point and discharge either into the bladder, rectum, perineum, or urethra, and so we have retention of urine. It generally occurs in people who will persist in drinking, or in those who have had the abortive treatment applied: it may cause fatal blood poisoning from pyœmia. When the pus bursts into the urethra, it becomes mixed with the urine, which will then run into the gland, and cause excavation, when the gland becomes enlarged and indurated.

Diagnosis.—If the patient complains of symptoms

of weight, burning &c., in the anus, and is feverish, and has rigors, pass a finger into rectum, and press slightly on back of prostate gland. This causes acute pain, and you feel that there is a softness or bogginess of the part, which is swollen, hot, and throbbing.

Treatment.—First allay all irritation, by hot baths, leeches to perineum, fomentations, and give salines and opiates. Keep the patient on a low diet; and when certain of pus having formed, incise as early as possible, either in perineum, or better still in the rectum, guiding the bistoury with the left finger inside the anus. Fortunately in most cases, a medical man sees the case before suppuration has set up, so that, by leeches, fomentations, and counter irritation, its course can be checked. It is generally necessary to use a catheter.

You will more frequently find that the inflammation does not go so far, but stops at the mucous membrane of the prostatic portion of the urethra, and this produces spasm of surrounding muscles with most painful scalding on making water, and feverishness.

In this case also are indicated rest, baths, drinking largely of fresh infusion of buchu, uva ursi, poplar bark, or any other demulcent fluid, together with alkaline drinks, and mineral waters.

Prostatorrhœa.—This will be treated of in another place.

Epididymitis and Orchitis.—Inflammation of the epidymis and testes ; the former being more commonly met with than the latter ; the best thing is to prevent these complications, by the constant use of a suspensory bandage from the first onset of the disease. The most frequent cause of these diseases is the use of too strong solutions for injections, and more rarely extension of the inflammation along the urethra to the vas deferens. The affection is principally limited to one side, and seldom, if ever, on both sides at same time. It is always in the late stage of gonorrhœa that we get either of these diseases.

Symptoms.—Pain and great tenderness on back of the testicle, heat, swelling, redness of scrotum, testicular retraction, rigors, and severe aching in groin. If patient is of a nervous temperament, there is also moderate fever. Scrotum now becomes more swollen, tense and shiny, and there is œdema beneath the tunica vaginalis producing hydrocele.

Treatment.—Patient to lie down, and support testicle on a towel placed like a platform across the front of the thighs, or any other apparatus to prevent testes hanging down. Use fomentations, give anodynes or opiates, and if there is much fluid in the scrotum (*hydrocele*), it should be punctured and let out, or the scrotum painted with collodion. Venœ-section and leeches are rarely required, and not desirable, but if obliged to abstract blood it is better

to open a vein, and thus reduce the congestion. To stop the bleeding, which is sometimes difficult, elevate the scrotum and apply ice and cold water, or pinch up the bleeding part and touch it with nitrate of silver, or freeze it by the spray, and, if all these fail to stop the hœmorrhage, put in a stitch. When the case is seen early, direct the patient to keep on his back, apply ice, give purgatives and salines with antimonial wine, or give minute doses of aconite. If the effusion of fluid in scrotum is not very great, it will gradually become absorbed, and disappear if left alone, and a suspensory bandage is worn. Sometimes there remains a small hard firm nodule in epididymis; this generally becomes absorbed within six months. After all the inflammation has subsided it is often advisable to strap the scrotum with strips of plaister, or to use Scott's ointment as a dressing. The patient may or may not require to take some tonic, along with iodide of potassium or sodium for a short time after.

Gonorrhœal Rheumatism. — This apparently supervenes in consequence of some depraved state of the blood, through the absorption of matter by the lymphatics. The treatment is the same as that for the ordinary forms of the disease, combined with the specific drugs usually given, as cubebs or copaiba, preferably the former. The patient must have rest, and have the parts affected immovably fixed, and then apply counter irritants as mustard plaister, iodine paint, blisters, &c., and take ten grains of Dover's powder,

with five grains of saltpetre combined at bedtime. When the acute stage is passed give quinine and colchicum, and be careful to see that the joints that have been attacked do not become permanently fixed.

Ophthalmia.—May be of two kinds, one affecting the conjunctiva, and produced by actual contact with gonorrhœal matter, as by inadvertently using the same towel one has used for the penis, or by touching the eye with the fingers while dressing the parts affected. The other kind of ophthalmia is deeper seated, and mostly in the interior of the eye; it is mainly of a rheumatic nature. Both require treating locally in the same way as the analogous non-specific diseases of the eye, but cubebs ought to be taken.

Sometimes in the groove behind the corona of the glans penis one or more warts appear; these are venereal. If the parts are kept very dry, and iodoform applied, or equal parts of calomel and powdered oleate of zinc, they soon disappear, or we may touch them with lunar caustic. If they are pedunculated snip them off with the scissors.

Sometimes there is much uneasiness and chafing of the glans, with abrasions of the membrane covering it and the prepuce. The principal thing to cure this is great cleanliness, and washing with lead lotion. If any vesicles form on the end of penis or about the prepuce

they must be well cleaned, and then bathed frequently with lead lotion, or a weak solution of liq. arsenicalis, to soothe all irritation.

Not unfrequently during violent sexual intercourse, if the frœnum is too short, or the vagina unusually narrow, the frœnum or lower part of meatus urinarius is ruptured, which is followed by so profuse a hœmorrhage as to require a fine thread ligature, and applications of ice or styptics, with pressure on the root of the penis.

Occasionally gonorrhœa attacks the anus and rectum, and this is often difficult to cure. It requires extreme cleanliness and syringing, and the same medicines as for gonorrhœa, and the application to the parts of extract of phytolacea decandra (poke root). Large quantities should be drunk of the infusion freshly made of the poke root, adding one drachm of bicarbonate of potash to each pint of the infusion.

Chapter III.

SIMPLE URETHRITIS.

Simple Urethritis.—This is a kind of non-specific gonorrhœa. It is only a simple inflammation of the urethra, arising altogether apart from impure sexual congress. It is due to a variety of causes, any

irritating agent may produce it, or it may be entirely constitutional, as in persons suffering from diabetes, calculi (stone in bladder), or merely the uric and oxalate diathesis ; gout, rheumatism, and scrofula also may produce it. Some strumous children have often a profuse discharge from the urethra. It is impossible to tell from the discharge alone, whether it is a case of simple urethritis, or one of gonorrhœa, as in both the discharge is purulent. We can only distinguish between the two, by the fact that in the simple non-specific form, the symptoms are less violent, remain a shorter period, and are more easily cured, and by the previous history of patient.

Treatment.—Keep the part very clean, bathe frequently, correct any constitutional cause, strengthen the patient by tonics and nourishing food, correct any bad habits he may have acquired, to which it may be partly if not altogether due.

Certain drugs, as cantharides, turpentine, or guaiacum, long continued use of asparagus, worms or teething, frequent and long-continued sexual excitement, especially if the patient has had gonorrhœa before, or stricture, or much drinking, may give rise to the disease. A man may get a discharge from connection with a chaste and virtuous female, when she is suffering from whites (leucorrhœa) or menstrual discharge. A female, who is not in good health, so that the normal discharge has become acrid, may cause it.

Chapter IV.

GONORRHŒA IN THE FEMALE.

Owing to the difference in the generative organs of the two sexes, it will be better to treat of these two separately, although nearly all the directions previously given for the former will apply equally well to the latter. It is necessary, however, to treat of those parts where the sexes differ. There is a specific inflammation of the vulva and vagina, and, as in the male, there is both an acute and a chronic stage. The inflammation may extend to the uterus, and even to the ovaries, but this is rarely met with. The cause is impure sexual congress, and is increased by uncleanliness, intemperance, whites, sexual intercourse, certain diseases, and general debility.

Symptoms.—At first heat, redness, swelling, pain, and smarting, with a scalding on making water. The vagina is found to be dry, and very red and tender; following upon these conditions there is a discharge similar in character to that of the male. Aching pain in the loins and extending to the groin is now felt, and the urethra is affected by extension of the inflammation, thus causing the difficulty in passing water. On the lining membrane of the vagina, there are formed

a number of little tubercles or pimples, called *vaginitis granulosa*, and these are always bathed by the infective discharge. If the disease is severe it extends to the neck of the womb, and to the os uteri, producing a feeling of weight, severe pain, and a bearing down. These symptoms will continue for a few days, and then gradually subside into the chronic stage, but inasmuch as the vagina can be much more easily washed out than the male urethra, the disease is more easily cured in its primary stage by appropriate remedies.

Treatment.—In the acute stage, rest, hot baths, fomentations, saline medicines; Seidlitz powders or doses of Epsom salts should be taken occasionally early in the morning to relieve the system. Copious injections of warm water should be thrown up into the vagina, either by an irrigator or Higginson's vaginal syringe. The ordinary squirt is of no use, the stream from it not being strong enough. Herbal infusions or the tinctures of the same drugs well diluted may be beneficially drunk. (See page 10).

In the chronic stage, we must use much stronger astringent injections than can be safely employed in treating males. An ointment composed of thirty grains of nitrate of silver to one ounce of vaseline or lanoline; a little of this on a pledget of lint may be applied by passing it high up into the vagina, taking care that all the vaginal mucous membrane is smeared with the ointment. Strong solutions of alum, borax, sulphate of

zinc, tannin or lead, the proportions being about 60 grains to one pint of water, to be used three or four times a day. Solutions of permanganate of potash, sulpho-carbolate of zinc, or corrosive sublimate are all good antiseptics and detergents, and especially valuable.

Complications.—These in females are fortunately rare ; the principal one is inflammation of the vulva, nymphœ, and clitoris, which one would naturally expect. This is soon cured if the parts are kept clean by frequently washing away the purulent matter, which is very irritating if allowed to remain for any length of time. If the patient is negligent in this respect, or has not time to pay proper attention to it, and the disease goes from bad to worse, an abscess will probably form in one of the labia, and this will require poulticing and incising when fully matured.

The urethra is often inflamed, not very acutely. The meatus, from which purulent discharge oozes, is inflamed and swollen, and micturition is painful. Fomentations, baths, and the use of a slight astringent lotion soon check it. In a few cases it may continue ; if so, the best topical remedy is a strong solution of corrosive sublimate applied direct to the part, or the part affected may be touched gently and carefully with the nitrate of silver point.

The neck of the uterus is occasionally attacked, and the inflammation may extend into the os uteri,

from which there exudes a very acrid discharge. This requires the same treatment as mentioned under vaginitis ; but in addition it will be necessary to pass a small pledget of lint, saturated with glycerine, into the os uteri, using a speculum to facilitate its insertion, or to pass a stick of nitrate of silver once or twice round the neck of the womb and the abraded patches just within the os.

If warts form, treat them as in the male ; they generally appear externally.

Chronic Leucorrhœa.—May be either vaginal or uterine. When the latter, it is from the extension of inflammation to the uterus. There is a viscid discharge, which has an alkaline reaction, and is non-irritating ; the external os is swollen and congested. For this condition use injections of plain warm water, and afterwards astringent lotions, and apply pure glycerine within the os uteri, or cauterise with lunar caustic.

Vaginal leucorrhœa differs from the uterine affection in that the discharge from the vaginal mucous membrane has an acid reaction, and is irritating, and more resembles pus than that which proceeds from the uterus. Treatment is very simple—cleanliness, frequent strong injections, the formula being the same as directed for gonorrhœa. It is a good plan in both

cases to take a mixture like the following, which I have given very often with marked benefit :—

℞	Ext. Ergotœ Liq. -	ʒii
	Liq. Strychniæ - -	- m 40
	Spt. Amm. Arom. -	- ʒii
	Eth. Chloric - -	- ʒii
	Aquæ Aurantii Flor. ad	- ℥viii

Two tablespoonfuls to be taken three times a day.

Or this—

℞	Liq. Ferri Perchlor -	- ʒii
	Tinct. Hamamelis -	- ʒii
	Tinct. Hyoscyami -	- ʒiv
	Aquæ Chloroform -	- ℥viii

Two tablespoonfuls to be taken three times a day.

Chapter V.

STRICTURE.

This subject is one that has been written up so fully and extensively by many eminent surgeons, that my chief difficulty is how to give a clear and brief summary of the more important points of their writings, and of my own experience. In so small a treatise as this it cannot be adequately done.

Stricture may be defined as a contraction or narrowing of some localised part or parts of the urethra. It may be congenital, or caused by foreign bodies, abnormal growths, gonorrhœa, fractured bones of the pelvis, abscesses, or enlarged prostate gland.

Stricture, properly so called, may be single or multiple, but rarely or never more than triple. It is either temporary or permanent, of which the former variety is the stricture due to a spasm of the muscular fibres (spasmodic stricture), which surround the urethra in two layers, a circular and a longitudinal. It is a very common condition, and often complicates organic stricture.

Organic stricture is due in all cases to a deposit of plastic lymph, becoming organised in the cellular tissue surrounding the mucous membrane of the urethra. The chief cause is chronic urethritis or gleet, or the use of too strong injections for gonorrhœa, especially if the subsequent inflammation has been of a low type. When effusion of lymph takes place in the cellular tissue, it fixes the mucous membrane, and so prevents its sliding or stretching when pressed upon.

Position of Stricture.—No organic stricture is ever met with in the prostatic portion. It is most frequent at the pubic curve, where the urethra passes through the triangular ligament just behind the scrotum, and at the commencement of the membranous part, but a stricture

may occur anywhere else in front of this ; many occur just inside the meatus urinarius. It is of importance to know whether the stricture is before or behind the scrotum, as treatment differs according as it is in one position or the other. If a catheter passes along easily until it arrives at the prostate gland, we may be sure there is no stricture.

Symptoms.—Difficulty in micturition, which, as stricture grows larger or further contracts the canal, becomes worse. In some cases there is a total inability to pass any water. A change in the stream is soon noticed, for there is twist or irregularity, and the water goes in two directions after leaving the meatus, and while doing this patient has to strain hard to force it, which causes some of the complications to arise, as piles, protrusion of bowels (hernia), and hypertrophy of the bladder. Pain is mostly felt in the urethra, but sometimes in the loins, back of the thighs, and testes. The stricture keeps up a gleety discharge, and sometimes causes the testes to swell. When the constriction has been long established, the urethra becomes dilated immediately behind it ; if this ulcerates outwards it causes a fistula into perineum. Prostate gland also becomes enlarged and diseased, and the bladder so thickened and distended, that the patient cannot empty it thoroughly ; the contained urine through decomposition may thus set up a low form of inflammation (*cystitis*). If this is allowed to go on unchecked, the mucous membrane becomes roughened, ureters

become dilated, and in time kidneys become hypertrophied and diseased, and result in death from either urœmia or septicœmia. Stricture usually deranges the general health to a serious degree: the sufferer complains of chronic indigestion, sleepless nights, and breaking out of blotches, boils, pimples, and rashes, and at night has rigors from more or less blood poisoning. Strictures are of various kinds, but may be conveniently classified into: (1) Simple or uncomplicated, being merely a narrowing of the passage. (2) Irritable, being very painful, and exciting spasm when touched or handled. In passing an instrument the patient is seized with rigors, and evinces fear and terror. (3) Resilient, elastic, or recurrent; this kind is also attended by spasm. Before making an examination it is best to give chloroform. In this variety the canal might be easily enlarged, but on account of the resiliency or elasticity, as soon as the instrument is taken away, the stricture is in the same condition as before. (4) Cartilaginous or gristly. This is the most difficult and intractable of the different kinds of stricture, as the obstruction is in the form of masses of organised plastic lymph, firm and indurated.

In examining for stricture it is best to let the patient lie down, and begin by the use of a No. 10 or No. 12 bougie, warmed and oiled, as if passed in cold it may excite a spasm. First then, warm and lubricate bougie, with glycerine, vaseline, or lanoline; if oil were used the meatus urinarius would rub it

off. Pass the instrument quickly along the upper surface of urethra ; if this cannot be easily done use a bougie of a smaller calibre. When the bougie, being inserted within the urethra, is held tight, as if grasped, and not temporarily as in muscular spasm, we may safely conclude there is a stricture. The bougie may be either of steel, silver, or gum elastic ; it should have only a short curve, and we should never use force to pass it into the bladder. Where there is no narrowing, the weight of the bougie alone is almost sufficient to carry it on ; we must depend more on careful manipulation, and tactus eruditus, than on mere physical propulsion. While doing this the penis should be kept on the stretch and in the middle line of the body, at an acute angle with the abdomen. When the stricture is felt, slightly withdraw the bougie, and probe gently on all sides, and the entrance being found, try to pass it by means of a gentle screwing motion, instead of a straight push. It is premised that the patient's bowels have been emptied before attempting the bougie. With a patient of a very sensitive nervous temperament an anœsthetic may be necessary.

If, unfortunately, a false passage should be made, you will at once be made aware of it by a sudden loosening of the bougie, which then feels as if it had plenty of room to move in, and some blood oozes up by the side of the instrument. If such is the case the best course to pursue is to let the patient rest for a

day or two, and give him sedatives. Making a false passage, which it is sometimes impossible to avoid doing, is not so serious as one might expect, since the passage will be in the same direction as the flow of urine. Occasionally in producing a false passage as well as in going through a stricture, urethral fever follows, *i.e.*, feverishness arising from inflammation of the urethra. Though it may appear alarming, it is not so, and if the patient is given quinine and opium for a day or two he recovers quickly. The object to be gained in treating stricture by the frequent passage of bougies is first to dilate the urethra, and then to keep it at its normal size in its whole length. We succeed quicker by getting the patient in good general health, then well considering in which portion of the urethra the stricture is placed, also the kind of stricture, and irritability of patient, the age of patient (the younger the better), his temperament, and any complications.

We can dilate either rapidly or gradually, or we can rupture ; cut internally or externally, or destroy with caustic.

Gradual dilatation is by passing a bougie of small calibre and leaving it in position for a short time daily, and increasing the size used until a No. 12 can be introduced. This mode of treatment is only available for the simplest form of stricture, and for those patients who are not prone to inflammation,

but is insufficient for very firm strictures, or if there be any complication.

Rupture of stricture.—This is done by using the thickest bougie which will pass, and forcing it through the stricture ; or passing in a wire, and then a series of tubes over it until we get the largest size in. It will however be thought that with each of the above methods, there is the danger of pushing the stricture further inwards, and thus lacerating the mucous membrane in front of it. There are many modifications of this method, but they all tend to rupture the stricture from before backwards, which is in itself a bad practice. The method that is most approved is to dilate the stricture from within outwards, and the instrument required for this purpose is so constructed, that on passing through the stricture, we can tell it has not made a false passage, as on entering the bladder, urine can be drawn off, thus proving it is not lodging in a false passage. The patient of course is under the influence of an anœsthetic to prevent spasm, and voluntary movements. The instrument consists of two blades, and on passing a dilator between these it separates them, a small probe being attached to prevent the dilator from passing too far. This operation widens the contracted part (without rupturing the mucous membrane), by breaking up and spreading the organized lymph over a larger surface, whence it may become absorbed.

We may use different sizes of dilators, according to the requirements of the case.

Sir Henry Thompson's dilator is somewhat similar to that described; there is a screw movement in it, which acts on two levers within the blades to separate them and dilate the constricted part. I find there is a danger of over-stretching the urethra by this, almost paralysing it. Either of these can only be used in a limited number of cases, and these are mostly the hard strictures in front of the scrotum. They are of little or no use in the resilient or long gristly kinds, but may be in some cases of the irritable kind. After using either of these instruments, it is advisable not to attempt the passage of a bougie or catheter for two or three days. The urethra being now very painful and irritable, the patient had better remain in bed for 24 or 48 hours. For a few days he will make water with difficulty, but about the fourth he usually feels better, when we must pass a large catheter, as the urethra would begin to contract again in healing, if an instrument was not occasionally passed for a time.

Internal Urethrectomy: Cutting the Stricture from Within.—In a certain number of cases this may be performed with advantage, as in hard gristly, in resilient, in some of the irritable variety of strictures, and in those varieties in which we cannot rupture by the above methods.

The best instrument to use is one which cuts from

within outwards. There are many kinds of urethrotomes, but they are all on much the same general principle. The penis should be kept well on the stretch and held firm. Lubricate the instrument, from which two sharp blades project when a spring is touched ; warm the instrument, and pass it into the urethra, until by its tightness it is felt to be in the stricture, then, by the markings on the urethrotome, we know the position of the blades. The stricture can now be cut in two places ; then retract the blades, and make a half turn with the instrument, cut again in two places at right angles to the previous ones. If there is only one blade to the urethrotome, we rotate the instrument and make incisions where we desire. There is not as much blood lost as one might expect ; any antiseptic dressing round penis will do, but all that is required is cleanliness and rest, and perhaps iced cloths. Do not attempt to pass any instrument for forty-eight hours afterwards ; even then the patient should be under an anæsthetic. Then pass in a catheter, draw off the urine, and treat as in rupturing stricture.

External Urethrectomy.—A few cases occur, fortunately only rarely, in which we cannot pass an instrument into the stricture, and apply any of the methods previously described. In these cases we can only cut down on the stricture from without.

Place your patient in the lithotomy position, *i.e.*, on his back, with legs widely separated and bent firmly

upwards, and body brought forwards to edge of bed or table. Pass a director to seat of stricture, and cut down upon the end of director in median line (raphe), until the end of bougie or director is seen. Look into the wound thus made, and try to find anterior end of stricture, into which pass a fine director, and then cut downwards and forwards from sacculated part behind stricture to place of first incision, or, after reaching seat of stricture with bougie, cut down on the urethra in front of prostate gland, and open up the canal as far as the point of bougie, which, being anterior to stricture, is necessarily divided in so doing. This latter mode of operating, however, cannot be recommended.

Syme's method is to pass an instrument into the bladder; the instrument has a groove on its under surface; the front part of the instrument is small and flexible, to enable it to pass the stricture. After making certain of its being in the bladder, the surgeon passes his left forefinger into rectum, then, with a fine-bladed knife, he passes it into the perineum just in front of the sphincter, deeply through the body of perineum, until he reaches the groove of the instrument, and cuts forwards through stricture, taking care to cut through all the fibres of the stricture thoroughly; after doing which, put in an elastic catheter, dress the wound, and give a sedative draught. This method is applicable to irritable, resilient, and especially the long, gristly or cartilaginous varieties; also to those cases

in which there are many fistulous openings, extravasation of urine, abscesses, or retention of urine, if these depend upon obstruction to flow of urine through the normal passage. But even after the stoppage in the urethra is rectified by any of the above methods, the occasional passing of a bougie is still necessary.

There is another mode of treating strictures, to which attention will be given in a subsequent paragraph, and which, I believe, in the future is destined, more than it has been in the past, to effect great changes in our treatment of stricture. The great desideratum is to find out what varieties of stricture it is most suited for. I allude to electrolysis. By its aid, it is my opinion, a very large percentage of cases can be cured without causing the patient any pain worth speaking of. While the current is acting it produces a sensation of warmth in the urethra, which is not by any means unpleasant.

We require a good galvanic battery of low tension, for at first only a few cells are used from five up to ten or a dozen cells, and during its action the battery ought to make no noise. This is important to remember, because it has been found that the part of the human body in which the negative pole of a battery is placed becomes thereby *electro-tonic*. We know that on touching the positive pole with moistened blue litmus paper it will turn red, while with the negative pole there is no change in colour ; thus showing if we

wish to avoid irritating the tissues, that only the negative pole should be applied to the seat of the stricture. Introduce as far as the anterior part of stricture as large an insulated bougie (which must be connected with the negative pole) as the meatus urinarius will allow, then apply the positive pole to some adjacent and convenient part of the patient's skin, damped previously with salt and water. Turn on the current, and in a few minutes, by gently pressing the end of the bougie against the stricture, it will make its way easily through the obstruction, without turning on its axis or using any force whatever ; very little pain is felt on the distension of the urethra. If there is more than one stricture, proceed with the rest in the same way until all the strictures have been opened up ; then disconnect the battery, and press gently on the bougie until it has entered the bladder. The operation may be repeated daily for a week, and then an ordinary bougie passed in occasionally will complete the cure. The rationale of this method is that the negative pole has the property of exciting those physiological and chemical changes in the organised lymph, which lead to its absorption, and also causing an increase in the nervous action of the part, which assists the vis medicatrix naturæ, or inherent tendency to reversion and maintenance of the normal condition.

This method is easy of application, and gives little or no pain, so that the patient is able to follow his usual occupation while under treatment. The efficacy

and satisfaction to both patient and doctor will render this mode of treatment one of the most frequently resorted to in the future. Especially will this be the case since many of the other methods, which I have described, are not more certain, and there is much pain attending them, while the patient is compelled to keep his bed.

Chapter VI.

SYPHILIS.

HISTORICAL INTRODUCTION.

This term in its widest application includes a class of diseases of the genito-urinary organs, which have been known, though imperfectly, from the earliest periods of history, as shown by biblical and mythological records, and by some of the poets of ancient Greece and Rome. From this period we find an occasional mention of its occurrence by various writers, but there is no clear account of it until we arrive at that great outbreak, at the end of the fifteenth century, of what was undoubtedly syphilis, which overran Europe like a plague, called the "*great pox*," France apparently being its starting point.

It is rather singular that pure blood negroes, and natives of Central Africa and equatorial regions, also of Iceland, Greenland, and very cold climates are exempt from the disease. It is noticeable that in semi-civilized countries it is but rarely found, therefore we might be

tempted to conclude that the amount of syphilis in any locality or district bears a definite ratio to its civilization ; in short it is one of the white man's gifts to the dark race in his work of evangelizing the whole world. From these facts it is certain there is no valid reason for asserting, as some have done, that Columbus was the first to introduce it into Europe. The epidemic had made its appearance before he sailed for the New World, and it was still very prevalent when he returned.

Since the above epoch syphilis has broken out epidemically and endemically in several places, especially those thickly populated districts on the sea-coast, where sanitary precautions are neglected, and police supervision is absent, or territories that are being opened up to civilization. The disease spread rapidly and virulently when the aborigines were attacked with syphilis for the first time, the septic germs having a virgin soil as regards venereal diseases to work upon, and in these victims the disease may be seen in its worst type.

Scotland was visited in the seventeenth century by an epidemic, which was carried and propagated principally by Cromwell's troopers. Several of these cases were treated in the Edinburgh and Glasgow Infirmaries. The disease gradually declined on the departure of the Protector and his victorious army. The Scotch called it Sibbens or Sivvens.

It appeared endemically also in Norway about 1720, and in Sweden about 1790 ; here also the movements of troops were the prime factor in its wide distribution. The natives gave it the name of Radesyge, or bad disorder.

East Prussia was similarly affected in 1757 after an invasion by the Russians.

It appeared in Southern Italy, Austria, and Venice about 1790, and was called Falcadina, as it showed itself first in the village of Falcade.

Early in the present century we find mention of an endemic disease named Skerljevo, in Dalmatia and Croatia, which was analogous to what we know now as syphilis, but owing to the utter want of cleanliness, and hygienic arrangement among the people, it was of a virulent type, and frequently complicated with such skin diseases as scabies, lepra, lupus, &c.

In Greece it is called spirokolon ; in Servia, Frenga ; and in Bulgaria and Wallachia, Boala.

Until the year 1832, all diseases of the generative organs were classed together, and no distinction drawn between the different forms of venereal diseases ; hence the confusion to us in reading the descriptions by ancient writers. The discrepancies met with are due to this want of differentiation. About this time Ricord of Paris investigated the whole subject of venereal diseases, and he discovered that what is now called

gonorrhœa was quite distinct from syphilis, as each depended upon a separate virus, so that one could not produce the other. A person may, however, have gonorrhœa and syphilis together, but they must have been contracted from two distinct sources of infection. Later on the same observer divided syphilis into two kinds, according to the nature of the local ulcer at the seat of contagion. One being simply a local disorder, and confined to its local manifestations, the other a constitutional disease, and the local ulcer merely one phase of its presence and progress.

Dr. Bell in England had also made investigation before Ricord's time, and he came to the same conclusion as Ricord came to afterwards. Some twenty years later than Ricord, Bassereau, after an independent investigation and course of experimentation, came to the same results as Bell and Ricord.

On the other hand some observers hold to the theory that it is wrong to speak of an infective, and a non-infective virus, because the two forms of local ulcer or chancres are from the same poison, the only difference being one of degree. Those who believe in the views of Ricord are termed dualists ; those who hold that the same virus will produce the two kinds are termed unicists. Without attempting to decide between these conflicting opinions, I shall, in the following pages, describe the two forms of chancre with the constitutional effects that follow the con-

tagious or true syphilitic ulcer. The treatment will then be given as succinctly as possible.

It is only natural, that in a subject of so wide a scope, and with so many workers upon it, there should be diverse opinions, and enquiries as to the precise condition of the special or specific poison of syphilis. By elaborate testing and analysis some have tried to prove the origo mali in a filamentous fungus, developed from spores ; others have found a parasite in a micrococcus, which could be cultivated in fungi ; somewhat later, another observer demonstrated certain corpuscles, which were special to syphilis, but his theory was soon proved to be incorrect. Then came the discovery of another spore, which multiplied in the white corpuscles of the blood ; this theory has not found any adherents.

Klebs announced in 1878 that he had found the real germ in rod-like moving bodies, capable of cultivation, and which, if given to animals, produced symptoms analogous to syphilis in the human subject.

This result has been confirmed by another worker. Although as yet it is not finally settled as to what are the particular germs which produce the disease, there is now no doubt, that it is dependent on some germ or other, nor have the results, which Klebs arrived at after exhaustive research on his part, been controverted.

Chapter VII.

SYPHILIS.

DEFINITION AND GENERAL DESCRIPTION.

Syphilis is a specific, contagious disease, which may be either hereditary or acquired. When it has been acquired it may be communicated in many ways,—by contact of the virus with any part where there is a breach of surface, or with delicate mucous membranes. In it also, when the person is exposed to the contagion, there is always a period of latency or incubation, with no apparent manifestations of the disease. This continues from three to five weeks; varying in different persons, and according to the virulence of the poison. The longer it is delayed in showing itself the milder is the type of the disease, and *vice versa*. After a variable period then, there appears at the seat of inoculation, a hard raised structure, generally with an ulcerated surface; this is the indurated or primary chancre, and is the true contagious sore. A thin section examined microscopically shows an enormously increased formation of granulation tissue, the true skin being entirely replaced by it, and in the interspaces there is a bulky mass of round cells. This pathological tissue does not tend to become connective

tissue, but remains in a rudimentary state for a long time, and then disappears, leaving very little cicatrix ; as it becomes caseous, it breaks down and disappears, leaving only a depression where it had been. After a short time, generally from nine days to a fortnight, the virus being carried by the lymphatics from the indurated primary chancre to the nearest glands, they become hard, swollen, and indolent. They have the same pathological characteristics as the primary chancre.

After an interval of from four to six weeks or three months the virus is passed into the blood from the lymphatic glands, and the second or secondary stage is indicated. Now as the virus is in a finely divided state, if there are any lesions, we should expect to have them symmetrically arranged on the body, and on corresponding parts in the skin, mucous membranes, bones, &c. We have first some slight fever with headache and loss of appetite, though in some cases these are not noticed. Then follow various cutaneous rashes, or maculœ, chiefly on the trunk ; some of these resemble erythema or roseola ; as the crop of roseola spots die away they are succeeded by tubercular or papular growths, and we may find similar spots on mucous membranes, especially over the tonsils, and pharynx, in the appearance of which there is a resemblance between this disease and one or two of the exanthematous fevers ; but in syphilis these symptoms last longer, and as in those fevers, we have here in

typical cases, emaciation, loss of strength, hair falling off, with the scaly or pustular eruptions, excoriated patches in the throat, and inflammation of the iris. In severe cases we have rheumatic pains in the bones and in the thin highly vascular membrane—the periosteum —which covers them. This stage continues from two to three years, undermining the patient's health and strength, so that his powers of resistance, when attacked by other diseases, is much enfeebled.

The disease still further progressing, we arrive at the third stage, in which we find another series of symptoms, chiefly characterised by the formation of interstitial tubercles or small indurated tumours, called *gummata*, a generic name for the whole class. These affect the skin, liver, heart, lungs, muscles, brain, &c., in short may be found in any part of the body in which blood circulates. These gummata are nearly similar histologically to the primary chancre, as they consist of granulation tissue with large round cells, and have a tendency to undergo caseous necrosis, and form solid bodies. They are very prone in superficial parts to ulcerate. These gummata vary in dimensions from a millet seed to a moderate sized apple or orange

The tumours themselves seem to be sharply defined in the tissue in which they grow ; at the periphery or outer part of each growth, we find bands of firm connective tissue growing. The central parts are caseous and opaque, and outside of these it is semi-

transparent, the whole being surrounded by granulation tissue and round cells, external to which is fibrous and connective tissue. The caseous part consists of fine fat granules with the debris of cells and nuclei. When ulceration commences this breaks down, and is absorbed and leaves an excavated ulcer with infiltrated walls, and this process extending there is often much destruction of tissue. Sometimes these caseous parts do not ulcerate, but lie dormant, or undergo calcareous degeneration, and the granulation tissue is absorbed, or as in the blood-vessels, they may be converted into connective tissue, which pressing upon and impeding the circulation, so interferes with the function of the part, as to slowly cause its death.

Syphilis *per se* is seldom or never quickly fatal. It is by the numerous gummata which form in various important organs, and the vital changes that then follow, that death is indirectly caused. In the later period of the tertiary stage, we may have amyloid disease, through the altered state of the blood from the lesions caused by the gummata.

There are many cases in which these stages are not so sharply defined ; we may have symptoms of secondaries in one part of the body, and tertiaries in another ; they may overlap each other in a variable manner.

Speaking generally, one attack confers an immunity from again contracting the disease—an additional similarity between it and the exanthemata—but we

find a few exceptions to this rule, for I have seen a few patients who had contracted the disease a second time, several years after the first inoculation ; though, in some of these cases it must be admitted that to me it did not seem a second attack from new contagion, but a recrudescence of the old complaint, through an abandonment of medical treatment, or the vital stamina being lowered by excesses and unhealthy surroundings. In all cases of a true second attack, I should expect to find the initial or indurated chancre.

Syphilis is undoubtedly inoculable in both the primary and secondary stages, and the secondary sores may all be communicated by contagion, but in this case it takes a longer time before the usual symptoms are fully developed.

What is the duration of syphilis ? This is a question about which we cannot give any very decided opinion. Each case must be considered on its own merits, and their practical bearings allowed for. The constitution and temperament of the patient, with the virulence of the syphilitic poison, are of great weight clinically, and it is only after a just estimate of these factors and others nearly allied that we can come to any definite conclusion. We may say, however, that up to at least two years from initial chancre, a patient may have relapses, and the disease remain actively communicable. The patient may suffer from tertiaries, if not all his life, certainly for ten years, even with ordinary treatment. With a more extended knowledge and better

modes of treatment, we may come to effect a radical cure in a very much shorter period.

Before concluding these remarks on the general description of syphilis, I wish to briefly mention the method of *inoculation* or *syphilization*. This is the introduction of syphilitic matter from a chancre, either into another individual, or on the same person at different parts of his body. The inoculation of the innocent is certainly very wrong practice, and well merits severe punishment ; while to inoculate the same person on different parts of the body from his own chancre serves no practical purpose, and is to be condemned. Professor Sir George Macleod used to relate the case of an unfortunate woman, who had as many as one hundred and ninety-two chancres inoculated upon her from the primary sore, and to state that he was sure the poor woman would have been cured much sooner if she had not undergone this useless infliction, and been treated in the ordinary constitutional manner.

CAUSES OF SYPHILIS.

I.—**Direct Contact**, as in sexual intercourse, the most common cause of all : a woman suckling a child with secondary sores, or a child at the breast of mother or nurse suffering from syphilis. It may also be transferred by kissing, lesions being common about lips and fauces. The hard chancre has frequently been seen about the mouth of persons. Medical men have taken the disease through attending women in labour

suffering from secondaries, if the attendant has an unprotected abrasion of the skin of the fingers. It has also been acquired by examining or operating on syphilitic persons, especially in *post-mortem* examinations. Nurses, of course, may contract the disease in a similar manner.

II.—**Indirect Contact.**—By using articles that are in common use by persons suffering from the disease, such as towels, spoons, cups, tumblers, or pipes, and by the ordinary method of vaccination, when this is carelessly performed, without proper cleanliness, or due care that no blood is mixed with the lymph taken. We take it for granted that one would never think of vaccinating from lymph taken from a child that bore unmistakable signs of syphilis ; though any one may fairly argue the point, and I think with justice on their side, whether it is ever advisable to use human lymph. Recent enquiries by Dr. Wheelhouse, of Leeds, into the statistics of children suffering from syphilis or scrofula, or both, is very large, and who may be the means of transmitting these diseases to others by vaccination from human lymph. These are facts, to say the least, unpleasant for medical science near the close of the nineteenth century. My own opinion, which I have carried out in practice for the last four years, is to always use calf lymph. If this was universally done we should hear much less of those objections and so-called "facts" of the case that the anti-vaccinationists make such free use of.

III.—**Hereditary Transmission.**—The disease is transmitted from one of the parents through the placental circulation. The more recent the disease the more liable is it to transmission, as in time it wears itself out. The fœtus is generally contaminated by the virus before the seventh month of pregnancy, *i.e.*, prior to viability. In such instances miscarriage or abortion is nearly always the result. If a woman has had a miscarriage, and soon becomes pregnant again, it is advisable to put her on a course of mercurial treatment, when you may probably reckon upon bringing the case to a successful termination, and having a healthy child born. I have followed out this method several times, and always with good results. After the mother has had the disease about three years, there is no further danger of syphilis to any future child. I have no belief in the theory that a father is able to transmit the disease to the unborn child, and the mother escape.

Progress and Symptoms.—Although it is usual to divide true syphilis into stages, which in practice are found to be somewhat artificial, as they are often contemporaneous, yet for didactic purposes and description, it will be better to speak of them in this order in the present treatise.

Primary Stage.—After a person has been exposed to the virus, nothing is seen or felt for three or four weeks ; then, at the place of contact with the poison, a small ulcer forms. At first there is only a slight

itching and redness, and it is upon this congested surface that the sore forms, which in a short time cracks. The adhesive inflammation in the neighbourhood of the ulcer causes an induration at its base. The inguinal lymphatic glands are engorged, but there is no tendency to suppuration, even after irritation. They remain in a chronically enlarged state for several years, causing no pain, and roll about under the fingers—hence the name, rolling glands.

The indurated sore or chancre now spreads, and shows an excavated glazed surface, the secretion from which is non-purulent, and will only turn to pus if greatly irritated by the person's clothes, uncleanliness, or wrong applications. The hardness at the base of the ulcer is sharply defined, and not much infiltrated into the surrounding tissues. In females this induration at the base of the sore is not so clearly defined, and spreads more into surrounding tissues, varying in density according to the position of the sore ; thus, the more the cellular tissue, the greater the induration, and *vice versâ*.

Syphilitic chancres are nearly always single. You may have them in any part of the body where there is an abrasion of the surface, especially where tissue is thin and blood supply copious, as on lips and at the junction of any mucous membrane with the skin. Its most frequent site is of course on the glans penis and prepuce of the male, and on the nymphœ and labia in the female.

The induration remains from three to four months, or even longer.

From nine to fourteen days after the induration of a sore has appeared, the lymphatic glands become swollen, as previously described, and form small groups of nodules beneath the integument. As the disease becomes cured they tend to resume their normal condition. In exceptional cases they have been known to undergo fatty or calcareous degeneration.

Treatment during first Stage.—It is now fairly well established that the only efficient treatment is by the use of mercury in some form or other. It may be given by the mouth, which is an easy way, but it is often too weakening to the digestion and general health. It is administered in a mild form in small doses, and continued for a lengthened period. Often it has to be combined with opium to prevent the mercury irritating the bowels too much; *e.g.*, Pilulæ hydrargyri 3 grains, pulveris opii $\frac{1}{4}$ grain—to make a pill, given twice a day, and continued for some weeks until the sore and induration have disappeared, or until the system has become thoroughly under its influence. If mercury is pushed too far, a blue line appears near the edge of the gums, the teeth become loose, a peculiar fœtor of breath is noted, and a coppery taste in the mouth, with copious salivary secretion (salivation), great depression of strength, and strange sensations about the heart.

Some prefer to give for a long time the common gray powder (hydrarg. cum cretâ) from 3 to 5 grains twice a day. Mercurial ointment has been given in form of pill, and seems to agree well with some patients. Others prefer calomel, but as this is more irritating, and brings on purging, it is combined with opium—thus, calomel 3 grains, opium ½ grain, given night and morning.

A favourite way of bringing the patient quickly under the influence of the drug, was frequent *inunction* of the body, with a strong mercurial ointment. It used to be rubbed in where the skin is thin as in the groins and armpit, and also by wearing a flannel bandage, smeared with the ointment, round the abdomen. Inunction is easily tolerated by the patient, and when not pushed too far causes comparatively little physical depression. It is not much resorted to now-a-days except in hospitals, as it is dirty and tedious, and causes too much trouble in private practice, and moreover cannot be carried on without attracting observation.

Fumigation is another good method. The patient has to sit on a cane-bottomed chair with a blanket fastened round his neck, and the whole body excepting the head enveloped by it ; underneath the chair is placed a spirit lamp, over which is a saucer half full of hot water, and floating on it, or better, placed on rim of saucer, a small tin receptacle containing twenty grains of calomel. The spirit lamp is lighted, and as the water boils, the calomel becomes hot, the metallic element sublimes, and the steam mixing with the sub-

limed mercury is deposited on the patient's skin. After sitting for a few minutes, he must then put on his night gown, and get into bed without wiping the skin. To avoid taking cold afterwards, it is advisable to have the fumigation only at night, unless the patient is confined to bed, when it can be done at any time. This may be repeated every other day until the symptoms have disappeared, or until system has got under the influence of it, as evidenced by coppery taste in the mouth, when it is as well to decrease the amount of calomel used at each fumigation.

We may also give Ricord's pill (green iodide of mercury), or Sedillot's pill, consisting of ointment of mercury, soap and marsh mallow, one and half-grains of each, or Van Swieton's liquor, which is a solution of corrosive sublimate. Iodide of potassium has been given in lieu of mercury, when the latter drug cannot be borne, but it does not appear to be of much benefit early in the disease. Others again have used stillingia and sanguinaria, while others praise the eclectic medicine under the cognomen of McDade's formula.

Local Measures.—Dr. Andronico states he has cut short a case by the following means. If the primary chancre is in a suitable position, as in the nymphœ or prepuce, he excises it altogether, but it must be done very soon, certainly within three days, and before the glands have become affected. The operation is contra-

indicated if they are enlarged. He claims by this means to eradicate the syphilitic virus.

Mr. Bloxam recommends the injection of a quarter of a grain of perchloride of mercury in twenty minims of water, which should be made fresh as required. He selects the buttock over the gluteal muscles, which is the most convenient place, though the puncture may be made in the infra-scapular region. Then after seeing that the hypodermic syringe is in good working order, he pushes the needle well into the glutei muscles, and injects the solution amongst the muscular fibres. After withdrawal a little swelling arises, but this is of no importance, and if not irritated gradually disappears in a few days. He repeats the same once a week or ten days for a few months, and then for a shorter period once a fortnight, when the patient is generally cured ; but it is safer to occasionally repeat it for a few months, even after all symptoms have disappeared. From my own experience I have found that if this method is carried out carefully it is very often successful, giving in the meantime some tonic as quinine, stillingia, sarsaparilla, &c. Another way is to take $1\frac{1}{2}$ grains of calomel rubbed up with vaseline, or what is better mucilage of gum arabic. When well shaken together it will present a white appearance without any gray discoloration whatever. This is injected as before into the glutei muscles on each side, and repeated in two or three weeks. When nine grains of calomel have been thus injected, the patient is

generally cured. As a precautionary measure he should take afterwards small doses of mercury occasionally for a few months. The above methods by injection are certainly useful, but as it is such a painful mode, I fear we cannot hope for it to become general.

The local measures to be employed are extreme cleanliness, and hot or vapour baths frequently. Remove all sources of irritation, and keep a wet rag dipped either in lead and opium lotion or yellow wash on the sore, taking care that adjacent parts do not touch the sore for fear of self-inoculation. You may apply iodoform which causes a little pain. The sore should be well washed, dried carefully, and dressed every four or five hours. The penis may be supported in a suspensory bandage to hold the dressings. In females the labia must be kept apart by a pledget of lint dipped in lead and opium lotion, or yellow wash.

Secondary Stage.—The period when the initiatory symptoms of this stage are developed is very variable. In the great majority of cases they appear often about three months after contagion, though it may be longer or shorter, according to the type of disease, and whether the patient has been under treatment from the first or not. Sometimes the disease seems to decline after the primary sore has been healed without any further manifestation. In many cases, again, we have no regular sequence of symptoms, but, instead, a mixture of first and second, and second and third stages.

It is generally taught that there is an interval of rest or an incubation period. After this sometimes commences a slight fever with sore throat, dry skin, and coated tongue, with rheumatic pains chiefly in the head at night. Various skin eruptions now soon appear, of which roseola is generally the first and most prominent; warts and mucous tubercles (flat and prominent); and psoriasis, lichen, eczema, herpes, and varicella are of frequent occurrence; acne, impetigo, ecthyma, tubercles (non-ulcerating kind). These may occur singly or in combination on same individual. Although they differ from each other in appearance, situation, and the course they run; yet they have all some characters in common, which clearly distinguish them from their non-specific forms.

In the syphilitic varieties they do not conform so much to the regular type, and in colour they are more coppery, or like lean ham in colour when the rash is mature, for at first they are often bright red. In shape the eruption is usually annular, or in the form of concentric rings, or two segments joining together may form either the figure of 8 arrangement or the lesser one of ɛ. There is rarely any smarting in the specific forms, and in the desquamative the scales are more scanty, powdery, and adherent. In those that scab or crust, the hardened cakes are thicker and firmer and of a darker colour raised on the centre; they have also a stratified and concentric ring-like arrangement, resembling a limpet-shell. The ulcerative

type are almost always circular with straight perpendicular edges, and the floor of the ulcer is gray and pultaceous, with margins of a decidedly coppery colour. The cicatrices of the ulcers have the same hue and crescentric shape. None of these signs are in themselves pathognomonic of syphilis ; but along with the history and other surroundings they may be taken as conclusive evidence. The more superficial the skin eruption the earlier is the stage, the deeper the tissues affected the later the stage, hence acne, rupia, impetigo, lupus and their allies are but postponed manifestations, and may be considered as either occurring at the close of the secondary or beginning of the tertiary symptoms.

Mucous tubercles are either raised or flat, and generally oval in shape ; they are situated on mucous membranes near their junction with the skin, and have a whitish velvet-like surface, with a slight exudation, which is inoculable. You often see them near the anus, the labia, and on the lips, margin of nostrils, and adjacent folds of skins. The prominent or raised kinds form the well-known condylomata, syphilitic wart, cauliflower excrescence, &c. The tubercles vary in appearance according as they are sessile or pedunculated, on a dry situation they are hard and rough to the touch, or on a moist one they form gelatinous, semi-transparent, moist, mal-odorous, mushroom-like projections. For more information on the syphilida, I refer the reader to Dr. Balmanno Squire's small manual on skin diseases.

Another prominent feature of the disease is Alopecia or loss of hair, producing entire or partial baldness. The beard and eyebrows may also be cast off ; the exposed surface is often scaly, and the epidermis is shed, as in the desquamation of scarlet fever.

Onychia.—Inflammation at root of the nails, results in deep ulceration, and hence is sometimes described as a psoriasis of the nails, and this is occasionally associated with swelling of the finger ends. The nails become brittle, fissured, and jagged.

Throat.—The uvula, tonsils, and pharynx are early affected, and afterwards deeper structures become involved. The ulcers commence about the centre of one or both tonsils, with a surrounding swelling and induration, this being the earlier form. Or the mucous membrane of the mouth, tongue, fauces, tonsils, and the upper part of the throat, seem to be affected as in psoriasis, the dusky red surface becoming opaquely white, swollen and excoriated in parts, with fissures on the tip and borders of tongue and angles of the mouth.

Glands.—Are generally affected early and but seldom in later stages. They are enlarged, indolent, feel like hard knots and feel loose under the finger with only a slight tendency to ulceration. The glands of the neck and groin are the best for exemplifying this.

Nose.—The lining membrane of the nostrils may

be attacked by a low form of inflammation, causing at first a redness, dryness, and a little irritation. Later there is an undue secretion of mucus with small ulcerations and fissures.

Larynx.—The larynx, trachea, and bronchi are sometimes affected by extension of the disease from the throat. The symptoms are the same as in the pharynx, with the exception of there being a slight irritable cough.

Osseous system.—The periosteum of the bones is also the seat of secondary disease, causing peculiar aching pains, worse at night and when warm than in the day time. They are felt principally in the forehead, sternum, clavicle, forearms, and the tibia.

Genital.—The epididymis, though rarely, becomes swollen and enlarged. There is often a slight discharge from the male urethra, from the result of catarrhal inflammation in the part, followed by a secretion analogous to what occurs in the nose and larynx, all of which are inoculable.

Eye.—The skin eruptions at this period may affect the eyelids, and cause mucous patches on the conjunctiva, similar to those in the throat, and the inflammation may spread to the cornea, or to the iris, producing iritis, indicated by dulness, irregular pupil, and a want of accommodation of the eye.

Ear.—Sometimes temporary deafness follows, from

the catarrhal inflammation attacking the aural passages.

Treatment.—We must still resort to mercurial remedies, but as it is now necessary to insist on their prolonged use, we must employ them in smaller quantities, and in a milder form. It is very necessary to combine these with tonics, and to draw up a good dietary for the patient's use, otherwise the general health will so deteriorate as to nullify our efforts. For the skin eruptions daily fumigation with five grains of calomel is highly beneficial, as by this means the drug is brought into immediate contact with the cutaneous surface. For the nose, mouth, throat, larynx, and bronchi, inhalation with calomel will be found useful. For rheumatic pains give a guaiacum mixture. A gargle of liquor hydrargyri perchloridi with chlorate of potash may also be employed for the mouth and fauces. To other places we may apply lotions of the same salt, and mercurial ointments. In addition we must insist on frequent hot baths, and the patient must stay in the bath from half an hour to an hour, keeping up the temperature of the water all the time. Or a course of Turkish and vapour baths must be resorted to. We must keep the bowels well open; and give remedies combining some preparation of iodine with mercury as the green iodide of mercury and henbane in pill, or the perchloride of mercury and iodide of potassium or sodium, with small doses of aconite in mixture. The common gray powder is usually efficacious, when con-

tinued, and when iodide of potassium or sodium with sarsaparilla is taken with it. When there is much cachexia with wasting, it is an indication for the preparations of iron as Easton's syrup, cod liver oil, or any other blood tonic ; we may also prescribe a pint of the compound decoction of sarsaparilla to be given daily, either with or without preparations of iron. If sleeplessness or restlessness is much complained of, small doses of opium, or the tincture of erythroxylon will give relief. In some troublesome cases of skin eruptions or throat complaints, the red oxide of mercury, $\frac{1}{8}$ to $\frac{1}{4}$ gr., iodide of potassium, 4 grs., tincture erythroxylon, 1 drachm, water to one ounce, to be taken three times a day. This has often effected a cure.

Tertiary Stage.—After a period of variable length the symptoms of the second stage disappear either with or without treatment, and an interval of apparently good health follows. In time, however, the ordinary symptoms of this stage appear, with the formation of small interstitial tumours, to which the name Gummata has been applied, composed, as I have said before, of granulation tissue, having a tendency to undergo caseous necrosis, though sometimes it may become transformed into connective tissue. Gummata are met with in almost any part of the body. In the superficial parts of the body, they appear as excavating ulcers, with swollen edges, which, breaking down, extend the ulcerative action to the neighbouring

structures, and these becoming involved, cause great destruction of tissue. Situated in the midst of internal organs, the tumours may become very large, or, under treatment, the caseous matter be absorbed, if the granulation is not converted into granulation tissue.

At this stage the blood of the patient no longer contains any syphilitic virus; this explains why the lesions met with are not symmetrical. It is probable that the gummata are capable of producing syphilis in another person. A later phase of the disease is when the gummata, by causing serious organic lesions, set up amyloid disease in different organs, chiefly in the liver. In this stage the foregoing morbid changes give rise to a peculiar pallid cachexia.

Skin.—Rupia, ecthyma, lupus, acne, and other diseases of the skin are met with. At first there are nodules and projecting tubercles, collected in groups and circumscribed, and characterised by being of a suppurative and ulcerative type (with softening of the gummata), leaving indelible cicatrices. When the ulcers heal they do so by granulation, but leave a depressed sear. Where tubercles have formed in the skin, they are of a purplish brown colour, have a slow course, fresh crops arising as old ones disappear, and if they take on the ulcerative type heal in the centre, and spread from the margins under the scab which is formed. There is very little disposition to heal unless treated actively. All these processes seem to cause

rheumatic and periosteal pains, and they tend to enfeeble greatly the general system.

Nose.—The alœ and septum of the nose are often attacked with extensive destruction of tissue.

Tongue.—Has sometimes nodules of gummata deposited in it with an area of induration round them. Where these break down, large ragged ulcers remain, which often extend far into the lingual tissue. The sublingual glands are enlarged during this process.

Mouth and Pharynx.—The nodules deposited here break down, and deep ulcers with sharply defined edges form, the slough inside the excavation being pale, gray, and adherent—most frequently seen on the soft palate and tonsils. Acute tonsillitis has been known to follow owing to irritation by the gummata.

Gullet.—The nodules formed here may go on to ulceration or the granulation tissue in the indurated portion be transformed into connective tissue, and these with cicatrices from the ulcers cause the well-known stricture of the esophagus.

Liver.—This organ is a very common seat of tertiary lesions; there is a low form of inflammation both in the investing membrane or capsule of liver, and in the fibrous and connective tissue of the liver substance; gummata then form in these parts. The liver may not be affected throughout, but only in patches. The parts implicated are at first enlarged, and afterwards

contract, when fibrous bands drag upon and compress the substance of the liver, causing a very uneven surface. Thus we have atrophy of the liver through diminished nutrition, the calibre of the blood vessels becoming much smaller by the shrinking of the granulation tissue, and the parts are studded with gummata. If this contraction is very extensive it will cause cirrhosis of liver, and sometimes jaundice is one of the symptoms of it, and by pressure on portal veins produce dropsy (ascites), hœmorrhoids, or piles, and bleeding from the nose, as in non-specific cirrhosis. Consequent on these changes in the liver, and by the alteration in the quality and amount of blood supply, we get amyloid disease.

Respiratory System.—The larynx is often the seat of deep ulceration, with irregular thickening of tissue, the ulcers healing and forming very firm and tough cicatrices. The laryngeal cartilages are also frequently implicated in the same way, and so are the vocal organs, which makes the voice hard and of a metallic quality. When the disease extends to the trachea and bronchi it causes a kind of chronic bronchitis. The deteriorative changes in the lungs are, pathologically speaking, similar to those in the liver, *i.e.*, the lining membrane (pleura) and connective tissue, in the midst of true lung substance, are subject to inflammation, with proliferation of granulation tissue, and deposits therein of gummata. Enlargement at first, afterwards contraction, so that the pulmonary

tissue surrounding the gummata becomes indurated, and the air cells impermeable. The blood-vessels are compressed, and nodules of gummata form in their walls. These alterations produce symptoms analogous to fibroid phthisis, such as dry cough, debility, wasting of flesh, sweating, harsh breathing, dyspnœa, and sometimes hœmorrhage, and the lesions in the pleura may cause pleurisy. The middle lobes seem to be more commonly affected than any other part of the lungs.

Circulatory System.—The cardiac muscles of the heart are sometimes affected by low inflammation of granulation tissue, with gummata, the latter breaking down and leaving cicatrices, the former becomes organised into fibrous tissue, which binds down the muscular fibres, and even takes their place. During the contractile process the muscles become atrophied and impair the function of the heart. The arteries are also similarly affected, and their calibre is much reduced, causing a less blood supply to the parts. The arteries in the brain are especially subject to these degenerative changes.

Nervous System. — The arteries in the brain having undergone the changes described bring about deranged cerebral function, through the interference with nutrition, and cerebral softening is likely to follow, with paralysis of different parts, according to locality of brain affected. There is inflammation and

induration of connective tissue in brain substance, with gummata, which may either ulcerate and break down, or form into tumours, and press on various nerve centres. If pressing on the optic nerve they may cause blindness, or paralysis of any part, according to nerve centre pressed upon. We may have headache, or very persistent strong convulsions, mania, epilepsy, &c. The spinal cord and other important branches of nerves, as the sciatic and brachial, may be the seat of lesion, affecting all the parts to which the nervous supply is distributed, and causing paralysis of the affected parts.

The Eye may also be implicated by the extension of the deposits into the retina and choroid, and even the iris, causing unequal vision, and synechia in the latter case, while, as a result of the former, we may have amaurosis.

The Ear.—An extension of the same morbid processes, from the pharynx and along the Eustachian tube into the middle ear, is the cause of deafness in the syphilitic subject. I have seen a case of specific ulceration in the auditory meatus, close to the tympanum, causing deafness on that side.

Genito-Urinary System.—The kidneys are attacked in same way as the liver, *i.e.*, the renal capsule and interstitial connective tissue become indurated, gummata and cicatricial tissue form, producing an uneven surface and atrophy, with wasting of gland

tissue, causing cirrhosis and amyloid disease. In amyloid kidney it is large and smooth. In many cases we have albuminuria present. The interstitial connective tissue in the corpus spongiosum and cavernosum, prostate, testes, and other appendages is also sometimes diseased. The testes become thickened and enlarged, the glandular tissue more and more encroached upon, until, in severe cases, it becomes simply a fibrous mass, when the patient is practically impotent. There is, however, very little pain during the changes, though, from the dragging on the spermatic cord, there is a certain amount of aching in the groins and in the loins. Except in very severe cases the cord, scrotum, and epididymi are free and distinct, and of normal sensitiveness ; on the other hand the testes are less sensible to the touch.

In the female genitals we find the same process in the muscular and connective tissue of both vagina and uterus. In the vagina the induration will cause a thickening by proliferation of fibrous and connective tissue, which produce an irregular narrowing of the passage. If the gummata break down, foul, irregular, troublesome ulcers form ; these are difficult to cure. The uterus is prone to disease, and a weakening of function results. As ulcers form, and muscular tissues become atrophied, there is much induration and impediment to the nutrition of the tissues. If the woman is pregnant the placenta becomes diseased similarly, and there is abundant formation of fibrous

tissue, which, by pressing on the blood vessels and trabeculæ, soon destroy the vitality of the fœtus.

Bones, Joints, &c.—These are characterized by gummatous tumours and a low form of inflammation, generally circumscribed, producing limited or more localised periostitis, or periosteal deposit of gummatous material called *nodes*. If the granulations should develop into bone tissue it will differ from the normal structure in the preponderance of medullary tissue, which becoming absorbed makes the bones very porous, friable, reticulated, or honeycombed, and caries will result. Sometimes owing to the periosteum being indurated and cicatricial tissue forming in it, the blood supply is cut off and necrosis follows, causing extensive destruction of bone. The same process occurs in fibrous tissue of the joints, and in the tendons, muscles, synovial membranes and bursœ.

Treatment.—This must be based on the same principle as in the advanced second stage, *i.e.*, mercury must be given and continued for a long time. As there is now great cachexia and debility, we must have recourse to mercurials combined with iodine, and give the mercury in progressively smaller doses, ordering at the same time a liberal and nutritious diet, with cod liver oil and malt extract (Kepler). The patient should if possible reside in a warm climate, and take some of the well-known mineral waters; Woodhall Spa, and Vichy, are among the best, from which to select. If there is much structural change,

the general health of the patient should be carefully attended to, while drinking the above waters. Hot baths frequently, or a regular course of pinol vapour or Turkish baths, will be found eminently serviceable.

The mercurial preparations must be continued for at least six months. Ricord of Paris recommended that the period be not less than twelve months. The drug has greater efficacy if it is given intermittently, and changed occasionally for some other mild form of mercury.

Dr. Bidenkap strongly recommends iodide of potassium or sodium and sarsaparilla, especially in the late stage. Dr. Marion Sims advises McDade's specific as a very efficient anti-syphilitic, and this remedy has been highly extolled by American physicians. It contains stillingia (queen's root), lappa, phytolacca (poke root), xanthoxylum (prickly ash), and smilax (sarsaparilla). Being alterative, tonic, and stimulant, this specific should have a very beneficial action, but personally I have tried it in too few cases to form any decided opinion as to its peculiar virtues. Other useful drugs are chlorate of potash, guaiacum, chimaphila (winter green), iris versicolor (blue flag), stillingia, phytolacca, cod liver oil and malt extract (Kepler). I can, however, strongly recommend a mixture of iodide of sodium with tincture erythroxylon coca. If the patient is anœmic, iron in some form ought to be given. In case the iodides disagree we may try the bromides for a

change, or iodoform ; unfortunately its very disagreeable smell militates against the use of it—a preparation of it is now manufactured, which is said to be inodorous, and yet none the less efficacious. Opium and pinol (Burroughs) may be given if there is much pain from rheumatism, periostitis, or other results of syphilis.

For the ulcerations, and all external manifestations of the disease, great cleanliness must be exercised, and we must use oleate of mercury, iodoform, or other suitable dressing. If the parts are indolent apply a stimulating lotion. For lesions on mucous membranes of vagina, vulva, conjunctiva, lips, or anus, dusting with equal parts of calomel and starch is admirable ; and to the tongue, mouth, and throat, a powder of calomel and pepsin, or red iodide of mercury, one-quarter grain mixed with six grains of pepsin, or zymine. If either of these powders are given they must be put on the tongue dry, and allowed to slowly combine with the saliva and then be swallowed, in order to maintain the local action as long as possible ; no fluid should be swallowed for some time afterwards. Inhalations and gargles of slightly acidulated solutions of a mercurial are extremely useful. Inhalations, more particularly for bronchi and lungs, choosing the perchloride for its antiseptic properties, or pinol, distilled from the pinus pumilio.

Internal organs must be treated in the manner previously mentioned, adding to the constitutional treatment the remedies one would give for the non-specific diseases of the several organs.

Chapter VIII.

INFANTILE OR CONGENITAL SYPHILIS.

The disease is present either as a secondary or a tertiary, or a mixture of the two. It is transmitted to the fœtus from the blood of the mother, or from the semen of the father, or from both. A common name amongst the working classes for it is "*snuffles*," from one of the principal symptoms being a snuffling in the nose, as sometimes heard in people with a bad cold. The child is often for the first two or three weeks apparently fine and healthy ; then its health begins to fail. Snuffling of the nose begins ; it is caused through the nostrils being filled with a sticky mucus. There is profuse watering of the eyes (*coryza*) as if from cold. Absence of hair on head and eyebrows, or if born with hair in these places it falls off. The skin loose and flabby, and upon it a reddish coppery eruption breaks out, which inclines to scab. The rash is often like roseola or lichen, though it may take on various forms. If the child is neglected and not properly washed and dried the eruptions appear much worse. The eruption is most severe on the genitals, palms of hands and soles of feet, and ends in psoriasis.

I have often seen the face and the whole body on different parts one mass of eruptions in various stages.

The child is fretful and emaciates, especially in the limbs, while the head is very large in proportion to face and body, and there is a peculiar but characteristic cachexia in the look of the child. Its general configuration might be aptly compared to that of "an old man in miniature," for the miserable offspring looks more like that than anything else, and the somewhat yellowish green complexion of the child gives additional colouring to the comparison.

The mucous membrane of the lips, mouth, throat, and anus are mostly fissured, cracked, and more or less crescentic in shape as in syphilitic lesions in general. In some of the worst cases we have hydrocephalus, gummata in the various viscera, and nodes on the shafts of the long bones, near where they are united to the epiphyses. The teeth are very irregular in children from seven years upwards, especially the incisors, the enamel is pitted, being of a honeycomb nature, and are notched (the peg-top form of teeth). They are of a dirty gray colour, instead of white and pearly, and easily wear away. These appearances are not by any means diagnostic, for they may be dependent on other diseases, where the primary digestion is affected. The milk teeth are irregular, even in really healthy children, so that little reliance can be placed on observations founded on their form.

A very common affection in these children is disease

of the cornea, a form of interstitial keratitis, sometimes resulting in blindness.

The child may die from these different lesions, or from extreme emaciation, deficient assimilative power, vomiting, diarrhœa, bronchitis, pneumonia, disease of the liver, or other disease of the viscera.

The degree in which a child suffers varies according to the strength of the syphilitic poison acting in its system ; some suffer but little, and show few signs of the complaint, and may even keep up a healthy hue and thrive, until the onset of some disease, when the resisting power of the child being reduced, some of the characteristic lesions of syphilis make their appearance.

A child may suffer from acquired syphilis through suckling a syphilitic nurse, by contagion of matter on an abraded surface on the mucous membrane of the lips, &c., or from vaccination which fortunately is very rare. In these cases we may see the primary chancre on the part inoculated.

Treatment.—Absolute cleanliness is of the first importance and the clothing should be frequently changed. After being used napkins should be well washed, not with soda as is frequently done, but with abundance of water and soap. I have seen nurses of indolent habits simply dry the napkins, which have been taken off the child, in order to save having to wash so many. This is a most reprehensible practice.

I know of several cases where skin eruptions have been produced from this cause and uncleanliness, for nurses or mothers who do this are not generally very cleanly.

The milk must be good and pure and from one cow. The mother ought to be forbidden to suckle the child. A wet nurse of course is inadmissible, as the nurse may get the disease from the child. Swiss milk, conjoined with some of the excellent infants' foods, which are now so largely used, or peptonised milk, may be given.

As regards drugs, mercury in some form is absolutely necessary. I have generally given small doses of calomel combined with chlorate of potash, which compound has never failed as yet in soon improving the little patient, *i.e.*, if the cachexia is not too pronounced. Even then it will do some good if combined with a stimulant, or coca wine. It is also easy to give a child a calomel bath or fumigation ; or we may apply a flannel bandage smeared with oleate of mercury, round the abdomen or any other part, or may rub a little of it in the groins. The nostrils should be kept open and free by injecting a very weak wash of liquor potassæ, or other alkaline lotion, and lubricating the nostrils with cold cream, lard, oil, or lanoline ointment. For the eyes, frequent washing and the bathing of or syringing them with dilute solutions of perchloride of mercury, and occasionally flicking from a camel hair brush a little calomel on the cornea.

At bedtime, slightly smearing the edges of the eyelids with diluted citrine ointment, will prevent them adhering the following morning.

By assiduously and carefully following out this treatment, and acting on general principles, one may generally look forward to a satisfactory result.

Chapter IX.

CHANCRE.

This is a purely local disease, caused by inoculating a discharge on a breach of surface. The disease is accompanied by suppurative inflammation. There is no period of incubation, and the part inoculated begins to smart and be irritable almost immediately, and there may be one or more sores. In a day or two there is a well-defined ulcer, with well-defined edges, as if a piece of tissue had been clean punched out of it. The most common localities of the sore are, in males, the cervix or the furrow behind the corona of glans penis; and the labia and nymphœ in the female. We can have a sore wherever the pus can inoculate on a breach of surface. There is always great destruction of surrounding tissues, at each point of inoculation. It is auto-inoculable.

There are three varieties of chancre: 1, simple, soft, non-indurating; 2, phagedœnic; 3, sloughing or gangrenous phagedœna.

I.—**Simple,** soft, or non-indurating. Usually begins in three or four days after inoculation, and suppurates at once. The ulcer has sharp defined edges, which are

often undermined. The secretion is abundant and purulent from the inflammation present. The base of the ulcer may be hard, but differs from that of true syphilis in that the floor of the ulcer itself is not hard, but spongy and always thickly covered with pus, which is absent in the hard chancre of syphilis. The feeling of resistance is simply due to effused lymph, neither is the hardness sharply defined as in the indurated ulcer, but spreads imperceptibly into the healthy tissues around. These outward signs will of course vary according to the part affected, and the amount of cellular tissue present. This variety as a rule will heal in from three to six weeks, leaving little trace of its presence. Occasionally the edges of the prepuce are fissured and cracked by sores, and there is often herpes, with excoriations of the parts around. In this simple variety there are frequently no further manifestations than those described, but in many more active cases, we have the simple form accompanied by a suppurating bubo, where the glands in the groin (inguinal glands) are enlarged and suppurate : again in some very rare cases we have this bubo with the sore on the penis. The chancre with a bubo is generally ragged and very inflammatory, and the absorbents leading to the glands are inflamed. The pus taken from any part from the sore to the glands inclusive is inoculable, though the blood generally is not contaminated, for the glands acting as depuratory organs do not allow it to pass through them unchanged.

Treatment.—Caustics have been recommended, such as acid nitrate of mercury, nitric acid and potassa fusa (caustic potash), to be applied within four days of inoculation, but I cannot recommend them. The best method is to keep the parts very clean and free from irritation, and then apply black wash, *i.e.*, calomel and lime water ; oleate of mercury dressing ; equal parts of powdered oleate of zinc and starch dusted over ; or a slight stimulating lotion. The scrotum ought to be elevated in a suspensory bandage, and the penis kept upwards on the abdomen. A dressing of lint should be worn between the sore or sores and contiguous parts, so that no pus can come in contact with the healthy tissue. In females the same precautions must be observed. Lint dipped in hazeline, pinol, or one grain to the ounce solution of permanganate of potash,* placed between the labia and nymphœ ; the entrance to the vagina may be plugged by absorbent cotton (Lawton) to prevent pus from inoculating the mucous membrane there.

If a chancre should cause phimosis, we must syringe between the glans penis and foreskin several times a day, with a solution of permanganate of potash, two drachms or two teaspoonfuls to half a pint of water ; or carbolic acid and opium lotion ; or perchloride of mercury lotion. In rare cases the chancre is in the urethra itself, when it is necessary that the treatment

* The one and two grains potassium permanganate tabloids (Burroughs, Wellcome & Co.) are an useful and convenient form for making the solution.

described under gonorrhœa should be followed out, and, as in that case we must use a catheter occasionally, after thoroughly syringing the urethra, in order to prevent, as far as possible, a stricture forming. The patient should drink copiously some kind of mucilaginous liquor, and infusion of buchu leaves, as mentioned previously. Foment and poultice the bubo, if one forms, and incise as soon as there is fluctuation, and then treat on general principles, by antiseptic dressings and frequent bathing of the parts. Give internally laxatives and tonics, such as malt extract (Kepler), Fellows' syrup of hypophosphites, and nourishing food, enjoining abstinence from all sexual excitement or intercourse.

Some strongly recommend applying iodoform to the sore, but I have only found it to answer when all inflammation has passed. The treatment given heals chancre quite as soon, there is much less pain, and no disagreeable odour as from the iodoform.

II.—**Phagedœnic.**—This is far more serious than the preceding. It is generally met with in persons, whose health is broken down from debauchery, drink, or other causes. The ulcer is small, irritable, ragged, and shallow, or if prominent it has unhealthy, soft, spongy granulations. It has a marked tendency to spread and slough in an irregular manner. The pus secreted is unhealthy, ichorous, and foul smelling.

Treatment.—This is the same as for the last. We must use strong antiseptics, permanganate of potash,

purified creasote, phenol, or corrosive sublimate. In some cases we may have to use caustics to destroy spongy granulations. The diet must be very nourishing, and medicines containing iron or bark and dilute nitric acid must be taken ; but no stimulants can be safely allowed, or only very sparingly.

III.—**Sloughing or Gangrenous Phagedœna.**—This is a very serious form locally, and is accompanied by much sloughing and mortification, or moist gangrene. The sore may begin to mortify and slough as soon as it forms, so do the surrounding tissues. It does not affect the absorbents or glands, though, if the simple soft chancre takes on this form, the bubo and absorbents would slough away, followed by great destruction of tissue. In this way the whole of the prepuce and glans penis may die. In females the labia and nymphœ are destroyed in a similar manner, for it may spread to a fearful extent ; in one case I saw, the greater part of the buttocks of a female had sloughed away. When death ensues, it is either from exhaustion or hœmorrhage, through implication of the blood-vessels.

Treatment.—Poultice with charcoal or yeast and charcoal, then with linseed meal. Fomentations of hot water, with bruised poppy-heads and marsh-mallow. The free use of opium, diffusible and stimulating medicines, alcohol, coca wine (Armbrecht), and nutritious diet. Patient, if very bad, must sit in a warm bath almost continuously, or be confined to bed.

If the sloughing is superficial use nitric acid to destroy quickly the surface of sloughing sore, and thus excite a healthy and plastic inflammatory action. To check the hœmorrhage apply freely the persulphate or perchloride of iron, hazeline, or any other styptic. The actual, or the galvanic cautery, may be used after first carefully freeing the parts from slough, so that the action may be direct to the part diseased. Afterwards use lotions of nitric acid freely diluted, acid tartrate of iron and potash, permanganate of potash, or a decoction of phytolacea decandra, or lanoline ointment of the same, made up of equal parts of the valoid fluid extract of phytolacca and lanoline. Lanoline (Liebreich), being a neutral compound, does not become rancid, and is the best basis of all for making ointments, or for use as a lubricant, and prevents the formation of crusts ; it is also very penetrative, and has non-irritant properties, being bland and soothing to the parts to which it is applied. It is now much used in lieu of vaseline.

PART II.

GENERATIVE DISEASES.

Chapter X.

SPERMATORRHŒA.

This term implies an involuntary discharge from the urethra of seminal fluid, containing spermatozoa—in other words, seminal incontinence.

The causes that give rise to it are various—masturbation, onanism, or self abuse, being one of the most frequent. Also sexual excesses in married or single life, any local irritations, or diseased conditions of the genitals, as balanitis, phymosis, long and narrow prepuce, catarrh of the urethra, hyperœsthesia (oversensitiveness) of prostatic portion of urethra, gonorrhœa, inflammation of seminal vesicles, epididymitis, spasmodic stricture (urethral or anal), worms, piles, constipation, paralysis or seminal vesicles, or ejaculatory ducts, or any irritation in this region may produce it. Like other diseases it may be studied in different stages, though the division is quite an arbitary one, being simply a difference in degree, according to the duration and progress of the case.

At first, then, it is noticed that the nocturnal emissions, with erections, are more frequent than in the healthy unmarried male, and after a varying period the semen flows without the patient being aware of it at the time.

Secondly, the pollutions occur involuntarily, and may even be caused by the rubbing of the clothes, horse-riding, viewing sensuous paintings, reading indecent literature, or otherwise acting on the mind in such a manner as to set up a reflex action in the genito-urinary centre of the spinal column.

Thirdly, when there is a slow and almost continuous escape of true seminal fluid, without erection or pleasure, and not brought about by lascivious thoughts. The flow is greatest during defœcation or micturition.

Ordinarily, in all men, whether of vigorous or only weakly health, nocturnal seminal discharges are quite natural, as all physiology teaches ; for, when the seminal vesicles and ducts are filled and distended with semen, the nerves are excited to expel what is not required for the wants of the system. If the man is strictly continent this occasional emission may be strictly and properly considered as but a compensatory action of nature. If these occasional reliefs to the system do not cause any derangement of health, feeling of malaise or weakness, the patient should be confidently assured they can do him no harm whatever. Of course, in forming our judgment, we must take into consideration the individual temperament, since,

what in one man may not be harmful, in another would be highly injurious and debilitating.

If the discharges are more numerous than is the case in the healthy subject, and pass the bounds of health, they are quickly followed by headache, backache, malaise, irritability of temper, loss of memory. The frequency of the act preys upon the mind, causing sexual hypochondriasis, with sometimes painful despondency, and a general feeling of unfitness for the active duties of life. After a time the patient becomes sleepless, nervous, and anœmic ; in addition there is a peculiarity of facial expression, that is almost unmistakable to the practised eye of the doctor ; for the man or youth never looks one straight in the face, but gives furtive, side-long glances. He has also a preternaturally old, careworn, insipid, listless look, and often pimpled face.

This being the state of matters sexual intercourse is quite out of the question, or can be but rarely accomplished, since ejaculation is too precipitate, or the organ soon loses its turgesence and becomes flaccid—hence arises one of the sources of impotence.

Emissio seminis happening when one is awake, and not depending on natural excitement is always an unhealthy sign, and ought early to be checked. Very slight irritation is sufficient to cause emission in these cases. Shaving and even combing the hair or shampooing has been known to excite it.

The last and very advanced stage of the disease is a very serious one. The discharge then occurs without

any orgasm or pleasure whatever, and the semen finding its way into the bladder, passes along with the urine, as recorded by Drs. Beard and Gross. The semen comes away on straining at stool, or even through conversing with a prepossessing female. There must be great weakness of the seminal vesicles and ejaculatory ducts to permit of such passive escape. The patient appears to be both physically and mentally a sad wreck, and if of a nervous or sanguinous temperament may become insane. He is now totally impotent, and has no sexual desires, and complains of muscular fatigue and rheumatic pains; the extremities are cold and clammy. He is restless, avoids society, likes to be alone, is continually brooding over his sexual troubles; in short he is a confirmed hypochondriac, with no capacity for mental exertion. The brain and spinal cord are affected in a manner frequently seen in those pitiful subjects, the general paralytics of our lunatic asylums. In fact through the influence of the nervous system, and the excessive drain on the system, the patient may suffer from almost any disease.

Spermatorrhœa, according to most observers, is now regarded as a symptom of various degenerations, but is chiefly considered as a *neurotic* lesion. The brain and spinal cord take on increased susceptibility, so that they have not the same power of resistance to impressions as in health, and the nerves supplying the genital parts, being thus less under cerebro-spinal control, are more irritable and are sooner thrown into action with

the usual result. This increased excitability in the nervous supply causes in time a paralysis, as seen in the third stage, when emission becomes a passive act.

Diagnosis.—The only way to clearly prove the nature of the disease is to examine the fluid for spermatozoa, or the fluid that adheres to the bougie used to explore the urethra and prostate. For this purpose we must place a little of it on a glass slide under the microscope, using a lens which will magnify from 350 to 500 times. We may have to take various specimens, and also at different periods of the day, as spermatozoa are not always present in any one given specimen. Sometimes they are broken down, and not easily made out, or through such a constant flow the time is insufficient for the spermatozoa to fully develop, so that they may be very few and immature in the drop under observation. This should make us cautious in coming to any conclusion until several specimens have been carefully examined. Their absence is not to be considered a proof that the disease is not spermatorrhœa, for although at the first onset of the disease we can almost always find them, yet in the later and more serious stages the semen is so thin and watery, and the testes are so exhausted that the fluid may be entirely free from spermatozoa, and there is nothing to see under the microscope, but a slightly gelatinous fluid in which are spermatic crystals and leucocytes, epithelium and fatty debris and shining bodies, particles of ill-formed spermatoza.

There is never strong erection, the penis is very flabby, and the testes hang loosely in the scrotum. If there is a flocculent deposit in the discharge which comes with the urine or during defœcation, and if the patient be impotent, and has the symptoms previously mentioned, with its progressive history, the affection is probably spermatorrhœa.

Prognosis.—Except in very severe cases of the third stage, I may say that these cases are perfectly amenable to treatment, providing the patient is determined to help the physician all he can, and will take sufficient pains to correct any bad habits he may have formed, and occupy his spare moments with more elevating subjects of thought. Spermatorrhœa is easier to cure when it has been brought on by causes other than masturbation, as when it depends on local lesions, such as stricture, piles, over-sensitiveness of prostatic urethra, varicocele, &c.

Treatment.—In the first place it is necessary to advise the patient to take light, nutritious, and easily digested food, of an unstimulating nature; the supper especially should be light, and alcoholic liquids avoided. The bladder should be frequently emptied, the bedclothes be light, and the bed not be too soft; the patient should get into the habit of lying on one side, never on his back, and micturate as soon as he awakes in the morning, as a full bladder conduces much towards erections and emissions. Every irritation, as horse exercise, the chafing of clothes, &c., should

be avoided. If masturbation has been practised it must at once be given up, and the thoughts directed into other channels, and all erotic notions banished. There must be no pandering to lustful and suggestive pictures or impure reading. Sexual intercourse ought not to be indulged in for some time, in order to give the genital organs rest, and time to recuperate and grow strong. The patient should do all he can to occupy his mind and body healthily, and so keep them employed. It is well to recommend a course of gymnastics, or some study he can give his whole mind to for the time being. Having so far cleared the way towards recovery, we must find out the cause or lesion. If it is from constipation, get the bowels into acting regularly by the use of salines, cascara sagrada, tincture of avena, mineral waters or any other purgative combined with a tonic. If piles are present apply the local remedies for that disease, as hazeline (Burroughs, Wellcome & Co.), and give confection of black pepper and sulphur in equal parts, two teaspoonfuls every morning; follow this up by some aperient mineral water, which will be found useful in atony of the intestines. Professor Dunglison used to recommend for this purpose, one ounce of Epsom salts, one drachm of bitartrate of potash (cream of tartar), and ten grains of sulphate of iron, all dissolved in a quart of water; a small tumblerful of this mixture to be taken every morning before breakfast. If the prepuce is too long and too narrow, or if there be

phimosis it must be remedied by circumcision or stretching. Herpes, or any other irritating eruption about the external genitals, should be treated by internal and external remedies, appropriate to the skin disease ; in the meantime dust the affected parts with powdered oleate of zinc and calomel in equal parts. With a large number of people there is a very common fault of not washing frequently behind the glans penis, and thus a quantity of sebaceous matter collects, which is apt to cause some irritation, hence the importance of cleanliness. Stricture, or catarrh of urethra, can be cured by appropriate remedies. Fissure of anus, or fistula, must be also rectified. The scrotum and testes must be supported in a suspensory bandage.

The most common cause of all, however, is a hyperœsthesia of the prostatic urethra, produced by masturbation or excessive sexual intercourse, and, according to Dr. S. W. Gross, there is nearly always in this portion of urethra a slight stricture, and the parts adjacent are very sensitive. In order to diagnose this, we use a bougie with a well formed bulb at the end, and after warming pass the instrument carefully and note particularly where it is arrested in its progress. Its onward progress is frequently found to be first retarded just in front of the utricle or the verumontanum. The stricture is very slight, and chiefly of the spasmodic variety, though there is almost always some slight chronic inflammation. For the treatment I always adopt the conical steel bougie recommended by

Dr. Gross, and pass it down beyond the stricture many times. If there is great tenderness or inflammation, the best mode of procedure is to touch the sensitive spot with a little mitigated nitrate of silver, afterwards using hot baths and douches to the spine.

Internally, instead of giving the person stimulants or aphrodisiacs, which are very injurious and bad in practice, we must rely on drugs, which will have an opposite action, and allay the irritability of the parts; for this purpose I have found nothing to answer better than the following: ℞ bromide of potassium half an ounce, tincture of gelseminum two drachms, liquid extract of ergot two drachms, tincture of belladonna one drachm and a half, syrup of ginger four drachms, and water to eight ounces—mix; two tablespoonfuls to be taken thrice daily, one of which must be on retiring to bed. In some cases the bromide is not well borne, or it produces acne. In its place try the bromide of sodium or ammonium, or bicarbonate of soda, or any other alkali. If the patient is weak and anœmic give immediately after meals Wyeth's liquor ferri dialysatum in water, and the above mixture night and morning only.

Other drugs which are useful are buchu, cerasein, lupulin, epigea repens, erythroxylon coca, hamamelis, stillingia, and the bark of the upland poplar. It is advisable to occasionally change the medicines, when we may get a better action. For instance, one may give the following: ℞ bromide of potash half an ounce, tinct. hamamelis two drachms, tincture erythroxylon

coca half an ounce, tincture of belladonna one drachm, syrup of ginger half an ounce, camphor water to eight ounces—mix ; two tablespoonfuls to be taken three times a day. After these have been persevered with for a considerable time, and the patient seems recovered from the disease and only the debility remains, it is possible we may have to give nervous and muscular stimulants, as strychnine, phosphorus, damiana, phosphate of iron, and other aphrodisiacs, though I have rarely found them necessary.

In addition to the above treatment in the two worst stages, galvanism may be resorted to, using only a weak power. Pass the negative pole down to the verumontanum, or into the rectum to the posterior part of the prostatic gland, and apply the positive pole to the perineum or the groin over the spermatic cord. If a stronger current is required, use the Faradaic current, about 10 to 15 cells, in a similar manner to the galvanic poles. When there is great diminution of the semen, the electrodes should be placed on each side of the testes, or must wear one of Pulvermacher's (Regent Street) well-known electric belts. In these cases, give internally strychnine and ergot, and order a nourishing diet and great cleanliness. Explain to the patient the reason why it is of the utmost importance he should lead a continent life, and have only moderate sexual intercourse if married, and if a bachelor or widower, how necessary it is to give up all evil practices before treatment will be of any avail, or a cure can be reasonably expected.

Chapter XI.

PROSTATORRHŒA.

This affection seems due to a varying amount of catarrhal inflammation of the prostatic urethra, and lies chiefly in those tubular glands of the prostatic ducts that open into the sinus pocularis. There is an excessive secretion of a clear viscous fluid, which often gums the lips of the meatus urinarius together. It but seldom exists alone, and is generally due to a complication of other diseases of the urino-genital system. It arises in connection with or follows upon gonorrhœa, spermatorrhœa, impotence, orchitis, stricture, and disorders of the rectum.

Causes.—The same which produce spermatorrhœa will cause it. The most frequent source is masturbation, gonorrhœa, sexual excesses, or, in cases within my experience, where men indulge in intercourse, but, to prevent having children, do not complete the act *in vaginam*. It may be caused by sitting for a long time on damp or cold seats, or horse riding, and by intemperance in eating and drinking. It has been supposed that the use of strong cathartic purgatives, straining at stool, and cantharides or turpentine will bring it on.

Symptoms.—The chief one to be noticed is the discharge of a clear, gelatinous fluid, which keeps

the end of the urethra almost always moist. Some slight tickling of the glans penis, causing erections, which re-acts unfavourably on the disease, by too often drawing the attention of the patient to the parts. There is also a desire to micturate frequently though the bladder may contain but little urine, which the patient can only pass a few drops at a time. When the viscus has been full, there are a few drops to be expelled, even after the patient has apparently finished urinating. Often in addition to this, we have a feeling of weight and fulness in the rectum, constipation, and pain and weakness in the loins. There is not any marked loss of flesh, though such patients are often thin, anœmic, rather nervous, and not sound sleepers ; they are restless. When intercourse is attempted, ejaculation is premature or slightly painful, and is followed by an undue feeling of fatigue. The disease, if allowed to go on unchecked, produces general lassitude, indigestion, black spots floating before the eyes, flushings of heat and cold, pain in the back, and sometimes, though rarely, numbness about the thighs or perineum. On passing a sound or bougie along the urethra, pain is felt, through the tenderness of the prostatic urethra, owing to the chronic inflammation of the sinus pocularis, prostatic ducts and follicles.

Under the microscope the clear gelatinous fluid discharge shows only mucous corpuscles, epithelium cells, with debris from the tubular glands, and sometimes casts from the follicles, as in glandular secretions,

from other parts of the body. In a short time crystals of phosphate of ammonia and magnesia appear on the slide. The fluid has an alkaline reaction, and there is an entire absence of spermatozoa.

Prognosis.—Although it is a tedious and obstinate disease, and continues a long time, yet under appropriate treatment it is entirely curable, though it will much depend upon the length of time it has existed, and also what diseases it is a complication of. If the patient is hypochondriacal, and thinks too much about his condition, it is not at all an easy matter to set him right again. Still there is no case, I believe, which cannot be cured if proper tact is shown, and the treatment rightly directed and carried out.

Treatment.—In the first place cure any obvious existing lesion, such as piles, constipation, stricture, &c., and look well to the general health, and rectify any dyspepsia there may be, and then order the patient a diet that is nutritious, liberal, and easily digested, and Kepler's malt extract, with some alterative. For the disease itself use hot baths every night at bedtime with thorough ablution of the glans penis and prepuce. Any enervating habits that have been practised must be given up, and excesses of all kinds, sexual or physical avoided. Alcohol in any form must be taken but very sparingly.

It is my custom to give one or more of the fol lowing: ℞ bromide of potash two drachms, tincture of

belladonna one and a half drachm, infusion of buchu leaves, freshly made, to make up to eight ounces—mix ; two tablespoonfuls to be taken three times a day. Or, ℞ bicarbonate of potash two drachms, tincture of hyoscyamus half an ounce, liquid extract of ergot two drachms, chloric ether two drachms, water to eight ounces—mix ; two tablespoonfuls to be taken three times a day. Other useful drugs are atropia, cerasein, copaiba, cubebs, cypripedin, digitalis, epigea repens, bark of the upland poplar, and hazeline. Afterwards as tonics we may give tincture of erythroxylon coca, iron, lupulin, gelseminum, &c.

Locally.—After taking bromide of potassium for a few days to blunt the over-sensitiveness of the urethra, it is good practice to pass a bougie frequently, and so set up a healthy action, and get rid entirely of the morbid sensibility. If necessary inject the sinus pocularis with hazeline, or nitrate of silver twenty grains to the ounce, or ten grains to the ounce if the other causes too much pain. If more suitable use from one drachm to half an ounce of liquor ferri persulphatis in eight ounces of water ; in short any tonic astringent injection. Only a few drops of any of these solutions to be placed on the floor of prostatic urethra. If these do not affect a cure within a reasonable time, the galvanic or Faradaic current may be tried. Flying blisters on perineum have been tried in some cases, with success. The latter, however, are but rarely required if the preceding directions are carefully and perseveringly carried out.

Chapter XII.

IMPOTENCE.

IN THE MALE.

This is a very common affection, much more so, indeed, than any non-medical reader would expect. It may be described as an inability to accomplish or perform the sexual act, which may be from one or more of several causes—thus, an imperfect erection, or entire absence of it, some organic malformation of penis, disease of the genitals, brain, or spinal cord—at least that portion of it from which are derived the nerves supplying the virile organ with the necessary stimulus.

Impotence produces an amount of misery almost incalculable, and leads to much domestic strife and unhappiness. It is often a prime factor in our divorce courts; and, moreover, the persons principally interested are diffident about making their unfortunate failing known. If, therefore, our profession can hold out any substantial hopes of cure, it will confer a great benefit to the incapacitated, and add in no small degree to the sum of human happiness. As we are now able to differentiate pretty clearly between the

curable and the incurable cases, we can in most cases give a definite prognosis. We should also particularly point out to our patients what are the true bearings of the sexual function, how far its use is legitimate, and how the numerous abuses and excesses to which this natural function is put to are followed by bodily inflictions, often of a most painful, humiliating, and obstinate character. If this is done with due descrimination and tact our efforts will not be in vain, and we shall also perform a great service in taking this rather unsavoury subject out of the hands of the numerous charlatans who fatten on the fears of the conscience-stricken and nervous, by pandering to their morbid imaginations, and charging exorbitant fees, after having struck fear into their dupes, by giving most gloomy accounts of their condition, shaking their heads and looking serious, saying, "How unfortunate you have not come earlier"—to be fleeced and made worse still; their charges usually being in an inverse ratio to their knowledge of the disease. The profession, unfortunately, somewhat ignore the diseases of the genito-urinary system because of its moral and social aspect. This is clearly a mistake, as it only drives patients into the hands of men who profess to cure "secret diseases" and the "solitary vice" speedily and successfully, and who scatter their seductive and nauseous leaflets broadcast over the land. Another reason, perhaps, is that during the student days of the future medical man these subjects are seldom or never

touched upon in a full and proper manner. Certainly they are not obligatory subjects, nor is attendance at any special hospital for these diseases necessary before qualification and graduation, so that, with so much for the student to study, and the hospital courses he must attend, it is no wonder that these subjects are very much neglected, and the consequence is that, in after life, the practitioner has no *special* knowledge of these diseases, and can only treat his patients on general principles, though this is better than handing them over to the mercy of quacks. Some medical men decline to undertake these cases at all; and I have not unfrequently heard these say that they do not care for such cases, &c.; so no wonder patients are so often consulting impostors, when they are coldly or cavalierly received by many practitioners. These diseases are as real and as serious to the mind of the patient, and to his bodily comfort and well being, as those produced by exposure to cold, or intemperance in eating and drinking, which we are in the habit of treating daily without any question of propriety; yet there is an unwillingness shown in treating diseases brought on by intemperance or abuse of the sexual functions, which, I must say, is both inconsistent and unbecoming to us as healers of the sick. To return to our subject after this digression.

The power and desire for sexual intercourse is strongest from about nineteen to fifty years, when it gradually becomes weaker and weaker, though in some

cases we see it strongly developed as early as the fourteenth year, and as late as seventy ; and instances are on record where the power was retained until the advanced age of ninety. Sexual capacity and desires vary much in different individuals, and according to occupations, being generally less in those who have hard manual labour or close mental occupation, while men who have little to do, and live generously, have nearly always strong sexual powers and desires. Impotence must not be confounded with sterility, for a man may be sterile, yet not by any means impotent ; there may be great sexual capacity and desire, and yet an incapacity of fecundating the female, or inability to produce offspring.

Causes.—Through mental influences (psychical), as too violent an emotion, passion, over-excited desire, want of confidence (a very common cause), anxiety, grief, distrust, frigidity to the particular person in contact with him, or feebleness and debility of genital organs after exhausting diseases, fevers, &c. It may also arise from masturbation, gonorrhœa, orchitis, and other diseases of the genital organs, including sexual excesses, incomplete intercourse, spermatorrhœa, prostatorrhœa, and excessive use of tobacco, or giving way to the opium habit, the habitual use of morphia, chloral, alcohol, haschish, the use or exposure to antimony, arsenic, lead, and sulphide of carbon, as seen in workmen, when these are used. Impotence springing from any of the above causes is curable by tact and careful management.

The most intractable cases are produced by concussions or blows on the head and back, diseases of brain and spinal cord, which abolish altogether, or greatly diminish, the reflex excitability of the nerves supplying the generative organs, causing atrophy of testes and penis ; or in persons suffering from diabetes, excessive obesity, or large scrotal hernia, where the penis is buried in the scrotum. These cases are only curable according to the degree of the lesion in brain and spinal cord, and the time the diseases have been present, and according to the prognosis of these diseases, whether they are hopeful from the first.

Impotence from organic deformities, as a rule, are incurable, but not necessarily so, as absence of the penis, or deformity in shape, want of development, mutilation, or even a double penis, as in a case related by Keyes. It may be too small or too large, or the penis may adhere to the scrotum, which then curves downwards, or there may be the distortion upwards or downwards, or the meatus of urethra may open too far back, or there may be absence of the glans penis, hypospadias, epispadias, or indurated patches preventing erection, the results of chancre, gummata, stricture, or external injuries to the penis. A very long and narrow prepuce was the cause in a recent case I had, which circumcision quickly cured. Arrest, removal, or immature development of testes, tumours growing in and displacing the true gland tissue, or atrophy and paralysis of testes may also produce the affection.

Symptoms.—In an overwhelming majority of cases the cause being masturbation or sexual excesses, there is a weakness of the virile organ, the nerves controlling the part being either diminished in excitability, or wholly incapable of responding to the stimulus for sexual congress, *i. e.*, there is an atonic state.

Atonic Impotence.—This may vary in degree from a case in which there is great desire, but somewhat imperfect erection and premature ejaculation, to one in which complete intercourse is impossible. In the first of these there is feeble erection of short duration with strong sexual desire, and in the last no desire and no power of erection. According to Sir J. Paget, masturbation does not produce worse results than sexual excesses, as in both cases it is friction which causes the orgasm and ejaculation. The lasting injury results from the number of times, *i. e.*, the quantity, and not the method or manner of doing it, thus, if one only masturbated the same number of times as another of similar constitution had sexual intercourse, the result would be the same in the two cases, but inasmuch as the former is begun at an earlier age, and moreover can be indulged in at all times in a secret manner, the opportunities are enormously increased, and the power of overcoming the baneful habit becomes less and less the more it is indulged in, and can be carried on by titillation and friction after erection becomes feeble, so long as desire remains ; while in the latter it presupposes the co-operation of the opposite sex, and cannot be carried on after power of erection fails.

In many of these cases there is a history of masturbation, sexual excesses, gonorrhœa, or syphilis. Patients will tell you the erections have been growing more feeble, and the ejaculations very premature, consequent on which they lose all confidence, become nervous, and fear they have lost their virility. This dread often makes them hypochondriac, they are restless, look pale, easily fatigued, complain of pain in the loins and back, and in many cases have frequent desire for micturation, which may be painful. They suffer from nocturnal or daily emissions, and the other symptoms of spermatorrhœa.

Where the atony has gone so far that there is no erection, but desire remains, it is worse to cure, takes longer time, and the above symptoms are all aggravated. Often there is a constant draining of semen with nervous and dyspeptic troubles, constipation, muscular weakness of the limbs, pain in the head and flushings, general and mental debility, troubled and unrefreshing sleep, sometimes palpitation of the heart. In the worst form, where there is neither erection nor desire it requires skill and tact to bring the case to a successful issue, as in addition to the preceding symptoms being greatly aggravated in character, there is a serious degree of paralysis to be overcome, and extreme sensitiveness of the urethra to cure.

In the great majority of these cases an observer will find on trying to pass the bougie that there is undue

sensitiveness and pain, which varies according to the phase of the disease. Since following out Dr. Gross' direction of always examining the urethra, I find not only tenderness either in the whole of the urethra, or only in the prostatic portion, but a small thread like stricture in some part or parts of the urethra; this being early made out the case is much simplified.

Treatment.—In the first place we must insist on a perfect rest for the organs in fault; masturbation and all sexual excesses given up, and the thoughts and habits of patient directed into other channels. Hot baths at bedtime should be recommended, and regularly continued. Give the patient at bedtime the following draught: bromide of potassium 30 grains, tincture of belladonna 10 drops, tincture of erythroxylon one drachm, glycerine one drachm, in a wine-glassful of water. Repeat this draught every six or eight hours, and after three days pass a bougie into the bladder, and carefully examine the urethra for any tender or sensitive parts. In all probability you will find a small stricture; if so, begin with a small bougie at first, and gradually increase until the largest one will pass. This method cures the over-sensitiveness of the urethra, and at the same time stretches the stricture. If there are very painful spots, it might be advisable to use a mitigated form of caustic to the part, though I do not often find it necessary to use nitrate of silver, especially if the acorn-headed bougie is used, as on withdrawing the instrument after passing it over the part, the bulbous

end hitches on the posterior surface of stricture and breaks it up, diminishing at the same time the abnormal sensitiveness. It also gives tone and stimulates the prostatic ducts in the "sinus pocularis" to contract. In severe cases where there is an absence of all desire or erections, I have found the use of galvanic current, as described under the head of stricture to be of immense benefit in giving a decidedly healthy tone to the genitalia. We may apply the poles externally to the different muscles of the penis, the prostate gland in the rectum and the perineum, besides using the electric brush over the skin of the penis. It is best to begin with very few cells, and neither to increase them quickly, nor to use the battery very long at one sitting, and also wear an electric belt.

We must watch the effect, after giving bromides any length of time, and as soon as they cause any disagreeable stomach symptoms, acne, or wasting of the testes, substitute some other nerve sedative, and give by way of change, the hypophosphites of sodium and calcium for a few weeks, then return to the bromide draught ; or, if the sensibility is now become normal, we may give as a tonic one drachm of Fellows' syrup in water three times a day after meals. The following is a favourite formula for the same purpose : ℞ hypophosphite of soda half an ounce, tincture of sumbul half an ounce, tincture of valerianate of ammonia half an ounce, liquid extract of ergot two drachms, glycerine one ounce, water to make eight

ounces. Two tablespoonfuls to be taken three times a day. Or, arseniate of iron five grains, extract of ergot half a drachm—make thirty pills; one to be taken night and morning. Or, phosphate of zinc, sulphate of quinine, arseniate of iron, made up into pills, are all beneficial. Alternately with these you should give a bitter stomachic tonic as nux vomica, calumba, sanguinaria, lupulin, &c. It is advisable to occasionally stop all medicines for a few days, so as to allow the system a rest. During all this time we must use the bougie occasionally, and if undue sensitiveness returns, again resort to the bromide draughts. After this period we may give teaspoonful doses of the liquid extract of damiana in water for a considerable time. Hot baths at bedtime, tepid sitz baths in the morning, galvanism occasionally, change of air with sea bathing, and cheerful company are important adjuncts. If the patient is a married man he must avoid sexual excesses, if single, lead a continent life, or be advised to marry, since legitimate and temperate intercourse will do much to keep his mind from dwelling on erotic ideas. Other symptoms, as anœmia, constipation, &c., must receive the usual attention and treatment.

Psychical Impotence. This has its origin in the nervous system. Amongst the causes which conduce to it may be mentioned, fear of an inability to have complete intercourse, frigidity, disgust, preoccupation, over-excited desires, fear and shame at being caught

in the act, sad news, abstruse or long continued mental preoccupation. Thus it is related of a celebrated mathematician, who was almost always working out problems requiring protracted and deep thought, that his wife was not pleased at the marked falling off in his sexual desires, so she resolved on the expedient of occasionally making him slightly intoxicated, so that he would forget his problems. This had the happy effect she desired. A man may prove impotent with certain women through his indifference, repugnance, or, if married, from suspecting his wife of infidelity. It is also not uncommon if he has failed with a woman once to be still unable on a second or third attempt being made. There may be an abnormal development or lesion of the parts as when the penis is too large, or there is a slight discharge, or a small stricture is present, which would not in themselves cause impotence, but only through the patient thinking it will—his fear thus being the real cause of his non-success. For the same reason those who have masturbated only to a slight extent, often fear they are impotent, and fail in their attempts at copulation simply from the mental disturbance and alarm, which condition is generally exaggerated by the reading of those detestable pamphlets of the charlatan type. Husbands during the first days of marriage are sometimes impotent from over-desire and impetuosity, or the opposite timidity and a dread of giving pain. This latter phase soon corrects itself after being married a little time.

Treatment.—When these cases are presented to us we must not rely too much on the psychical side of the question. Although it may be the important factor, yet there is often an antecedent history of chronic masturbation, or frequent sexual excitement and ungratified desire, which have kept the genitals in a constant state of excitability, so as to produce an analogous condition to slight atonic impotence. Therefore it is always expedient to examine the urethra, and see if there is no sensitive spot or slight stricture. If there is it must be cured. Pass an instrument every other day if necessary. We had better give as a placebo, some liquid extract of damiana in teaspoonful doses. Use electric brush on the skin of the penis, the other electrode being on perineum. Do your utmost to gain the patients' confidence, usually a difficult matter, as they are generally bad to convince, and feel quite certain they are incurably impotent. I need scarcely say such cases are always curable if treated skilfully and with tact. The practitioner must never on any account make light of the matter, or let it appear he thinks the case frivolous, for it is by no means so to the patient. You will do well therefore to treat him with every consideration, and if there appears any manifest cause, as too long a prepuce, which may or may not be the cause of his impotence, the practitioner had better do something to it as a placebo, and give him a bitter tonic at the same time. This practice will yield better results than attempting to laugh him out of his fears.

Symptomatic Impotence.—Incapacity for sexual intercourse considered as a result of some other disease or lesion in another part or parts of the body. It is curable according as to whether the pre-existing disease is curable, and the length of time it has existed.

Causes.—May be brought on by exposure to the fumes of lead or arsenic, whether from exhalation from the manufacture of their compounds, or living in rooms which have arsenical wall papers. Prolonged exposure to fumes or vapour of iodine or of bisulphate of carbon, and, though to a less extent, from antimony. In addition it may arise from the prolonged use of bromides or iodides, from the abuse of opium and haschish, as seen in orientals, from the morphia and chloral habit, and the more generally known cause of chronic alcoholism.

A temporary abeyance of sexual power is seen in severe and exhausting diseases, such as diabetes. Diseases of the brain or spinal cord, or injuries to either from falls, blows, concussions, &c., almost always cause it, especially if there is muscular atrophy, paralysis with wasting of the penis and testes. Spinal irritation produces it from the irritability and hyperœsthesia it sets up in the genital organs.

Symptoms.—These vary according to the proximate cause, from complete absence or only feeble erections and quick ejaculations, to moderate erection but without power, and premature ejaculation. In all

there is incapacity for complete coition. The other symptoms are those of the disease causing the symptomatic impotence.

Prognosis.—Very favourable when it arises from the use of various remedies, drugs, chemicals, or from the habits of morphia, opium, chloral, haschish, &c.; or from curable diseases and the slighter forms of diseases, or injuries of the brain and spinal cord. Unfavourable in organic diseases and severe injuries to the brain or spinal cord.

Treatment.—If impotence arises from remedies, as drugs, they must be given up. It is a more difficult matter to get the patient to abstain from opium, tobacco, chloral, morphia, &c. Here it would be better to cure the craving for narcotics; for this purpose, I know of nothing so good as tincture of avena sativa and tincture of coca—one drachm of each to be taken in water three times a day. The tincture of avena is made from the husks of oats by a process of precipitation, but I suppose it can also be compounded in the form of an extract. At present it is only used as an eclectic remedy, I am sorry to say; but, after having tried it in a good many cases and carefully watched its effects, I am inclined to think highly of its properties as a nervine stimulant, laxative, and tonic. It certainly controls the baneful longing for opium, alcohol, and tobacco. The erythroxylon coca is now a reliable and well recognised nerve stimulant and

tonic, and is of great service in insomnia. If, from inhaling any noxious vapours, the obvious plan is to change the occupation or residence ; or, if from wall papers, to tear them away and well lime-wash the walls. If from any disease or injury, treat the proximate cause.

After the removal of any of the above causes, the treatment must be directed to restoring the power and vigour of the genital organs by the aid of galvanism, as previously mentioned. Tepid or cold douches down the spine may be advisable ; a generous diet, change of air, and sea bathing will materially hasten the cure. For drugs we may give nervine tonics, such as phosphorus, the phosphates and the hypophosphites, or nux vomica, ergot, quinine, iron and zinc, either simply or in combination.

Organic Impotence.—This is caused by various well-defined lesions, which prevent erection, or cause an incapacity for complete intercourse.

Causes and Treatment.—The penis may be congenitally absent, or have been amputated, or be malformed, as in a case recorded where the organ was double, the man using the left one for intercourse. The size of the penis may be a cause ; it may be too small or too large ; if the former it will probably become larger after marriage. Sometimes it is only relatively small, as in cases of excessive obesity, where, owing to the fatty protruberance of the abdomen,

intromission is difficult. Relieving the obesity is the cure for this. So also in large scrotal hernia the penis may be buried ; nothing but the reduction of the hernia will obviate this, and wearing a truss. If the penis is enlarged through disease, as "elephantiasis," nothing can as a rule be done.

Another frequent cause is adhesion of the under surface of the penis to the scrotum, sometimes even up to the frœnum. As a rule this is seen in early life, and then ought to be divided, and antiseptic water dressings applied until it heals. I have operated on several infants with a view to its cure ; it is an easy operation during infancy, and leaves the penis to develop as the patient grows older.

A year or two ago I had a case of impotence under my care, in which the penis could not become fully erected, owing to a long narrow prepuce, with an opening not so large as to admit a No. 2 catheter ; attempts at intercourse caused great pain. Circumcision effectually cured this man.

The penis may be distorted either by the corpus spongiosum being shorter than the corpora cavernosa, when the penis is bent down like a bow ; or by the corpora cavernosa being shorter or prevented from expanding during erection, by indurated spots with plastic lymph deposited on them, or by extension of gonorrheal inflammation into erectile tissue, or, in rare cases, the deposits due to the gouty diathesis infiltrating

the trabeculæ or the corpora, causing a kind of calcification, or by the deposition of syphilitic gummata. The penis will be bent upwards, causing much pain, and often preventing its entrance into the vagina. If only one of the corpora is affected the penis will be bent to one side or the other. In all these surgical interference is necessary, except when from gout or syphilitic gummata. In the first of these diseases give citrate of lithia and vinum colchici, with farinaceous vegetables, Bragg's biscuits, and acid fruits ; in the latter anti-syphilitic remedies will soon cure the lesions.

If the dorsal vein of the penis is enlarged, tortuous, and varicose, the injection of ergotine, according to Bartholow, is quite effective.

If the frœnum is too short, it may draw down the end of the penis. This only requires a transverse incision, and afterwards water dressing.

Proceeding to the deeper parts, the testes, epididymi, &c., may be malformed, undeveloped, or diseased, which condition produces undoubted impotence, generally unfavourable for cure. If there is complete absence of testes (anorchidism), or arrest of development, nothing can be done. Cryptorchids, that is, men whose testes are retained in the abdomen, are generally potent, though some are impotent, but in any case surgical interference is out of the question. Syphilitic orchitis causes impotence, but is curable under proper anti-syphilitic treatment. Atrophy or

wasting of the testes from disease of the brain or spinal cord, produces an incurable impotence ; and so do cancerous, tubercular, and sarcomatous tumours of the testes, by destroying or displacing the true gland tissue. If there is only one testicle affected the patient may be able to complete intercourse, but after a time the desire is diminished, and consequently he becomes more and more impotent.

The testes may also be lost from surgical interference, or self-mutilation. For a time after their removal the man is able to have intercourse, and even an emission, as if the "vesiculœ seminales" were attempting to take on the function of the testes, but it is very rare that the capacity for coition remains longer than a year. A physician has recorded the case of a man being able to have connection with his wife for upwards of four years after the excision of the testes, but I am somewhat sceptical as to the strict veracity of the story. My own experience is in conformity with that of other observers, that it is impossible in such cases to have proper sexual intercourse after a year has transpired.

Finally, if a patient over fifty years, or fifty-five complains of impotence, and if he has been married, or committed sexual excesses, or practised masturbation, he must be told that the function of the genitals is declining, and he cannot expect to be always young. However, there are great differences among

men in this respect ; if a man is robust and vigorous, and has not abused himself much in youth, or committed great sexual excesses, much may be done for him, by giving small doses of some nervine tonic for a long time, by attending to his general health, and acting on sound hygienic principles. In addition we may use with care and discretion galvanism or electricity to the penis, testes, or the spinal cord.

If the causes are beyond cure, the practitioner must frankly tell the patient, and explain to him the reasons for this conclusion.

Chapter XIII.

STERILITY.

IN THE MALE.

Sterility.—An inability to produce offspring. A man may be capable of quite vigorous intercourse, and even have a discharge of fluid during the act, and yet be sterile, so that sterility does not include impotence, but the latter certainly includes sterility.

The seminal fluid is made up of the combined secretions of the testes, epididymi, vas deferens, seminal vesicles, basement membrane of the canals and ejaculatory ducts, the prostate and Cowper's gland

and follicles of the urethra. Semen capable of producing offspring must contain spermatozoa. These are formed in the testes, and at first they appear devoid of movement ; it is not until they reach the seminal vesicles that movements are observed. Here they are mixed with more fluid secreted by these organs, the fluid seeming too dense for the spermatozoa to develop in previously. From this point upwards they take on their peculiar ciliary motion. When the fluid with its contained spermatozoa is mixed with the prostatic fluid it gives off its own peculiar faint odour. Semen has an alkaline reaction, and coagulates immediately on exposure to the air, but soon becomes fluid again.

If a man ejaculates at any time a fluid in which there are no spermatozoa, or if from any cause the fluid containing them is prevented from being deposited into or on the female generative organs, he is said to be sterile.

Causes.—All the conditions and causes which produce impotence and spermatorrhœa will also cause sterility.

I.—**From Changes in the Semen.**—Great intemperance in alcoholic fluids, excessive use of tobacco and opium may cause sterility by destroying or diminishing the number and vitality of the spermatozoa. Certain diseases as albuminuria, diabetes, tuberculosis, phthisis (in late stages only) ; and in certain bad forms of dyspepsia, the vitality of the spermatozoa is destroyed,

and secretion of the fluid is often arrested. The semen itself may be too thick and dense, and the spermatozoa may undergo a process of fatty degeneration or other pathological change. Sexual excesses and masturbation may cause the affection by exhausting the secretion of the testes, and making the fluid too watery, so that the spermatozoa get less and less vitality, and more undeveloped until there seems to be no more secreted. Some defect in brain or spinal cord ; the function of testes not being called into action there is no semen secreted. Tumours of both testes as in cancer, tubercle, &c., will prevent secretion, but if only one testicle is affected the patient may not be altogether sterile. Abscess of testes destroy the vitality of the semen.

Symptoms.—In a patient suffering from any of the above diseases, the semen is not unfrequently absent, *i. e.*, no secretion takes place ; if there is a secretion we shall, on examining it by the microscope, find no spermatozoa, or only lifeless bodies, sometimes only spermatic crystals. When pus is present in the semen, from abscesses, inflammation, &c., however small in quantity, it is infertile. The spermatozoa in some diseases undergo fatty degeneration, movement becoming feebler and feebler as the process of degeneration continues until it finally ceases. After sexual excesses or masturbation the semen is very watery in consistence, and the spermatozoa are few in number, and if long continued they are absent altogether. In

these cases diurnal and nocturnal emissions are frequent, and the secretory apparatus is so interfered with that there are no spermatozoa formed. On the other hand the fluid ejaculated is too thick and dense, and the spermatozoa appear lifeless, but on adding a small amount of tepid water they are soon seen to move actively about, and be full of life. In the semen of those who indulge to excess in morphia, opium, tobacco, alcohol, &c., the spermatozoa are either absent or much impaired in vitality. In old men who are infertile the semen is scanty, watery, of a brownish colour, and destitute of the impregnating organisms. The semen may be quite normal until it reaches the ejaculatory ducts, but if there is catarrh of the prostatic urethra, the secretion from it will soon destroy the vitality of the seminal fluid.

Treatment.—When infertile semen results from any of the diseases mentioned above, the cure of sterility is only secondary to that of the disease causing it. Afterwards the patient will require nervine tonics, and galvanism to the testes with perhaps cold douches to the spine. If the sterility arises from inflammation or abscess, these conditions must first be rectified before we can look for any benefit from medicines that brace up the general system. Endeavour to ascertain what amount of injury from inflammation the testes or accessory apparatus have sustained. If the gland tissue of both organs is much destroyed the cure is unfavourable, but this is rarely the case, though the

cure is frequently long and tedious. When the sterility is from catarrh of the prostatic urethra the treatment is that of gleet, and slightly alkaline injections into the urethra, along which a bougie should be occasionally passed. When from masturbation or sexual excesses, all that is necessary is to observe strict abstinence from either cause, and to give such remedies as extract of damiana, and tincture of erythroxylon, with purgatives, and order frequent warm baths ; the general treatment being the same as that detailed in the chapter on impotence. The same may be said when the sterility is due to the opium, tobacco, or alcoholic habit ; the patient should altogether abstain from these agents, and in a month or two the semen will be normal or nearly so.

Sterility from syphilis is best cured by resorting to the mercurial and iodide treatment, and inunctions of mercury in the groin. When the impoverished semen arises from inflammation and induration of the two epididymi we must insist on rest, purgatives and saline medicines combined with vinum antimonii, and tincture of aconite until nausea is complained of, the scrotum being kept raised by a suspensory bandage, and cooling lotions used. Afterwards dress the scrotum with Scott's dressing, or oleate of mercury ; give internally the following : iodide of potassium, forty grains ; solution of corrosive sublimate, one ounce ; tincture of cinchonæ co., one ounce ; chloric ether, one drachm—add water to make eight ounces ; two tablespoonfuls to be taken

three times a day. This will act in absorbing the induration as well as the products of inflammation. If the semen is so thick that the spermatozoa cannot move freely, we must carefully and slowly inject a little tepid water soon after intercourse ; this would be very rarely required. If the disease is the result of disease, injury or defect in brain or spinal cord, there is generally aspermatism, *i. e.*, there is no emission of semen. For this we are unable, as a rule, to do any good by treatment. The primary disease is of paramount importance, and the sterility only secondary. We can do but little when both testicles are the seat of tumours ; the true gland tissue, being implicated, is often destroyed, so that there is no semen secreted. When the deficiency is only from simple orchitis or abscess of the testes we may, by careful treatment, bring them into a healthy action, so that after a time the fluid will again become healthy in composition.

II.—**Causes from obstruction, malformation or absence.**—Inflammation of the urethra causing stricture, tumours of the epididymi, induration or abscess of the same strictures ; obliteration of the vas deferens, seminal vesicles, or ejaculatory ducts from inflammation, abscess, pressure of tumours, &c. Sometimes the ejaculatory ducts are destroyed, or closed up by abscess in or near the prostate gland, and they often become obliterated after the operation for lithotomy, causing atrophy of the testes. Obstruction to escape of seminal fluid may be from

stricture, and a consequent regurgitation into the bladder, or the secretion oozes slowly away from penis after erection has ceased. A very tight prepuce has been known to act in the same way as a stricture.

From malformation or absence. It is rare for the testes to be absent (anorchids), though cases have from time to time been reported. The persons resemble eunuchs in appearance. Both testes may have been removed for disease. The organs may not have descended, but remain in the abdomen (cryptorchids). Individuals in this condition are often as vigorous and capable of intercourse as possible, yet it is the exception for them to be capable of fecundating the female. The two epididymi, or vasa deferentia, may be absent, or not fully developed, or there may be no communication between them and the testes on the one hand, or the seminal vesicles on the other. The latter as well as the ejaculatory ducts are occasionally absent from birth.

Causes from an inability to deposit semen in the upper part of the vagina. In amputations of the penis, or where there are fistulous openings in the urethra through abscesses after stricture, and operations for injury. Also in hypospadias and epispadias, for an account of these diseases I must refer the reader to works on surgery. The meatus urinarius may be malformed or misplaced, and in several cases on record it has been situated either too far underneath

or above, and on either side. It may be due to the frœnum being too short. In one example the penis was so distorted as to present the dorsal surface nearly underneath, and in another the penis was fractured by forcibly bending it while turgid with blood in a case of priapism.

Treatment.—When from obliteration of epididymi, vas deferens, seminal vesicles, or ejaculatory ducts, all treatment is useless ; if the conditions are congenital, there is defective development in the individual. If, however, it proceeds from pressure on neighbouring structures, we may express a hopeful opinion of the case, and by the aid of salines, rest, and counter irritation, remove the cause. By passing a finger in the rectum, we may detect where the stoppage is, and, in some cases be able to remove the impediment. In one case where plastic lymph had formed in the vasa deferentia, there was no emission whatever on intercourse until, by the aid of iodide of potassium and other absorbents, it flowed along the usual tract, and the patient became capable of procreation. Sometimes, as previously stated, the orifices of the ejaculatory ducts are impervious. Here it will be necessary to try the method adopted by Riliquet, which is to pass a sound into the bladder and turn the instrument round, so that its point presses on the lower part of the viscus in front of the seminal vesicles, and with the finger in the rectum, we may press forwards with both sound and finger on the seminal vesicles, to try

and open up the ejaculatory ducts and their orifices in the sinus pocularis.

If there is no discharge of semen owing to stricture of the urethra, we must use the galvanic current, and dilate or divide the stricture. If it is due to a tight, narrow, elongated prepuce, the only remedy is circumcision. In advanced cases, where, from masturbation or sexual excesses, there is no semen formed, and the whole parts are in a state of insensibility to impressions, we should have recourse to nerve tonics, as strychnia, iron, quinine, phosphates, or hypophosphites, along with galvanism ; in short the treatment of the analogous condition in impotence, for it is usually combined.

For epispadias and hypospadias little can be done, although some have attempted, by the plastic operation, to rectify the defect, and so enable the semen to be deposited in the vagina. The operations, however, have been performed more, if not entirely, to rectify urination than insemination. For fistulous openings where semen may escape, it is best to attempt the cure by keeping in a bougie, or always drawing off urine by a catheter, until the fistulæ are closed. Where the meatus urinarius is displaced by shortness of the frœnum, the remedy is to incise it, and apply water dressings until the parts are healed.

Chapter XIV.

IMPOTENCE.

IN THE FEMALE.

A woman is said to be impotent, when, from various causes, sexual congress cannot be perfectly performed. It is a comparatively rare disease in itself, and must not be confounded with sterility or barrenness, along with which there may or may not be impotence.

Impotence, apart from serious organic or constitutional diseases, must depend on some obstruction to the passage of the male organ, effectually impeding intercourse. This may be due to many causes, congenital or acquired. When congenital it is often not noticed until after puberty. The menstrual flow, if entirely impeded, gives rise to grave symptoms, demanding an early examination, when the lesion may be detected; or, in cases where there is nothing unusual in the character of the menstrual period, the lesion or lesions producing the impotence, may only be detected after marriage. The majority of these cases are of a remediable nature, and this is of especial importance, both from a social and marital point of view, and from a medico-legal aspect; for if a female is pronounced permanently impotent, the husband can successfully

sue for a divorce, the verdict resting entirely on the question, whether it is or is not a remediable case.

Causes.—I.—Adhesion of labia pudendi. Sometimes the vulvar lips are agglutinated and firmly adherent to each other in their whole length, except just at the orifice of the urethra. Thus there is a complete occlusion of the vagina, called *atresia vulvæ*. If congenital, or brought on by inflammation, or a leucorrhœa, the mucous membrane after suppuration may afterwards throw out plastic lymph, and the opposed edges of the labia become united.

Treatment.—If seen early, simple forcing apart by digital pressure until the adhesions are broken up will generally suffice. If this cannot be done, or is insufficient, we are generally able to pass a small director near the urethral orifice behind the adhesion, where the labia are nearly always free. Now bring the probe forwards and downwards to break up adhesions from behind, aiding the separation in front with the handle of a scalpel or other blunt instrument. In cases which have not been attended to, or are of long standing, and the adhesions are very firm, the only remedy then is incision. To do this we pass the director as previously mentioned, and cut along the raphe or middle line down into the groove of the instrument. After either of these operations, the labia must be kept apart by a fold of oiled lint, which should be frequently changed to keep the parts clean.

II.—**Excessively developed, or a very rigid Hymen.**—The hymen may be without the usual perforation, or almost cover in the entrance to the vagina, and more than this, instead of its being a soft, pliable membrane, it may be hard and rigid, and of a fibrous consistence. When it is so firm and unyielding as to resist the passage of the male organ, the woman is impotent; in most cases, however, the hymen is ruptured in the first attempts at successful intercourse.

Where there is no perforation the symptoms after puberty are those of retained menses. There are the usual symptoms of menstruation, but they are all aggravated, because there is no outlet for the discharge —severe back-ache, inguinal pains of a forcing character, and later on swelling with tenderness of the lower part of the abdomen. Feverishness, difficulty in micturition, and defecation are complained of, and there is a swelling like a *prolapsus vaginæ*; blood poisoning may ensue. If not detected and soon relieved, the menstrual blood may pass through the fallopian tubes into the peritoneal cavity, after the vagina, uterus, and tubes are as full as they can be.

Treatment.—When seen it is best to make a very small valvular incision, or first draw off a little fluid by an aspirator, so as to reduce the pressure, and at the same time carefully bandage the patient round the body, and apply a perineal pad. Afterwards draw off at intervals a little more fluid, until the dangerous pressure

is relieved. Then it will be safer to evacuate the fluid entirely by free incision. If blood poisoning has already arisen, it is best to draw off at once by a large incision, and use antiseptic dressings or lotions. But as a general rule, where there has been great distension of any part, and the walls have become thin and inelastic, if the fluid causing the distension is taken away suddenly, there is always danger of sudden rupture, which shows the necessity and great importance in such cases of evacuating the fluid slowly. Where the distension is not great, I always make a free incision and evacuate the fluid completely, afterwards inject the vagina with solution of permanganate of potash or other antiseptic, and keep the patient in bed for a day or two. In cases of impotence from a firm, tough, but not impervious hymen, its condition is rarely found out until attempts at intercourse, as the menstrual fluid can escape, the female has not had her attention drawn to the matter. Still, in some cases, it is so tough as to prevent intromission of the male organ. Attempts at coition cause much pain, discomfort, and annoyance at the repeated failures to consummate the marriage. There have been exceptional cases recorded where the hymen has been so persistent and firm as to prevent complete copulation, yet the semen being deposited on the vulva, the spermatozoa have found their way into the internal genital organs, and thus reaching the matured female ovule caused fecundation. In such cases it has been found necessary to incise the

hymen to allow the fœtus to pass. When we are called upon to examine and treat a case of persistent hymen, we must first make sure that it is really too tough and firm to be ruptured by intercourse, for, in several instances, the fault has been due to the male organ, as when there is deficient virile force in the penis, or erection does not remain long enough, owing to too quick ejaculation on the part of the husband.

The only plan is to make a cross or star-like incision in the hymen, and place a fold of oiled lint between the labia to prevent any adhesion taking place, and also to soothe the part. Afterwards pass daily for a little time a speculum, or use large medicated pessaries. The proper fulfilment of marital duties will then complete the cure.

III.—**Occlusion of Vagina.**—There may be absence, malformation, an impervious condition, or involuntary spasmodic closure of the sphincter muscle of the vagina. Congenital absence of vagina is of very rare occurrence ; it may be due to an undeveloped condition, imperforate hymen, or a membrane stretched across the vagina behind the natural hymen, or there may be a membranous tube, ending in a *cul de sac*, some distance from the uterus, or only a fibrous band, showing where the vagina should have been.

Treatment.—This depends very much upon whether the uterus and its appendages are well developed or not. If they are rudimentary or absent it is better to

do nothing, for it would not benefit the patient in the least. If it is from an imperforate hymen or some membrane behind it, an incision would be all that is necessary. When the passage ends simply in a *cul de sac*, we must gradually dilate it, and cut down on to the os uteri, tearing or separating the structures with the handle of a scalpel, more than cutting, for fear of wounding the bladder or rectum. In entire absence of the vagina there are generally so many other organs undeveloped, that the question of impotence would be of only secondary importance to other matters which would arise for consideration. If, however, the question did arise, operative measures must be resorted to, and after a passage had been made, and means used to keep it open, until it is covered by epithelium. In performing this operation we should first ascertain that the menstrual molimen is just over, and so avoid one source of danger. The contents of the bladder and rectum having been emptied, get the patient well under the influence of an anæsthetic, and then place her in the lithotomy position, with the hips well over the edge of the bed. Now pass the index finger of the left hand into the bowel, and press the rectum well backwards against the sacrum and coccyx, and introduce into the bladder a curved sound, instructing an assistant to hook up the bladder, so as to keep it out of harm's way. Just in front of the anus make a transverse incision, also a longitudinal and central one in front of the transverse incision ; this will produce

a triangular wound. Then dissect carefully upwards, towards where the cervix uteri ought to be, tearing or stretching the tissues asunder, or using a blunt instrument, as the handle of a scalpel, or the fingers may be passed in, and worked up firmly and gradually until the cervix uteri is reached, keeping all the time, as near as possible, at an equal distance between the rectum and bladder, but on the whole rather closer to the rectum than the bladder, and thus follow the normal posterior curve, and avoiding injury to the neck of the bladder. If the os uteri is then found to be closed or imperforate, we must make an artificial opening by means of a bistoury, or an incision with a blunt director, or an uterine sound, or puncture with a trochar, so as not to cut many blood vessels, which would cause a rather profuse hœmorrhage.

After the artificial vagina has been made we must keep it open, or subsequent contraction will close it. With this end in view we tell the patient to wear a glass or vulcanite tube, or stuff the passage with pledgets of oiled lint. The artificial opening into the uterus may be kept patent by means of either a sponge or sea tangle tent or bougie. A T bandage should be applied to keep them from slipping out, for they will require to be worn for some time. After a shorter or longer period, according to the nature of the case, the surfaces become hardened, and are gradually covered by epithelium, when all artificial appliances may be

dispensed with. The frequent use of warm borax lotions must be enjoined.

IV.—**Acquired Atresia Vaginœ.**—Here there has once been a natural vagina, but from many causes the passage has become occluded. There is nearly always some remains of it, or it may be tortuous or sinuous, or even be reduced to a mere sinuous fistula.

The various causes which produce such a closure are inflammation of the vagina, and cicatrization afterwards resulting; or an injury during or following delivery after protracted labour, when sloughing often takes place, and cicatricial tissue forms, which gradually obliterates the vagina; the same results may arise from burns and scalds and general injuries, ulceration after venereal diseases; after some of the debilitating fevers sloughing takes place, and during its progress recto and vesico-vaginal fistula are apt to form, and be a complication of the atresia. Inflammation and sloughing of the vaginal wall may also be caused by too strong caustics or injections, as nitrate of silver or perchloride of iron.

Treatment.—This is the same as that described in the last case, and as there has been a pervious vagina previously, and as in almost all there is a sinuous tract left, we may accept the latter as a guide, and gradually work the fore finger onwards, cutting with a bistoury or scalpel, where there are several strong cicatricial bands, and then inserting a vulcanite tube or pledgets

of oiled lint, as in previous case. It is a good plan to use the galvanic current, using only graduated sizes of negative reophores. This method will be found very advantageous, and in many cases most effectual.

Now and then we come across examples of duplex or double vagina. It only rarely causes impotence ; if it impedes copulation, as it often does, the proper method is to put the vagina on the stretch with a bivalve speculum, one blade in each passage, and the septum on the stretch between them. All we have now to do is to cut this dividing wall with blunt pointed scissors as far up as the uterus. Afterwards wash the cut edges with hamamelis, which stops the hœmorrhage ; pass in a vaginal dilator, which will also control the hœmorrhage, or plug the vagina with oiled lint, which will both control the hœmorrhage and act as a dressing.

V.—**Vaginismus or Over-sensitiveness.**—It is occasionally met with, and causes impotence very effectually. This affection is much commoner than is generally supposed, but females, from a natural feeling of delicacy, and fear of pain, refrain from seeking relief and treatment. All attempts at intercourse give severe pain, and a spasmodic closure of sphincter vagina, so that coition is impossible ; even gentle digital examination will cause great pain and spasm. Sometimes this is so great from extreme sensitivity and irritability of the peripheral nerves, that if attempts at intercourse are still persevered in, convulsions may

follow. It is one of the factors that produce much unhappiness in married life, and has been in several instances the cause of suit for divorce ; yet, with tact, patience, and care, it is an eminently remediable condition. If this state of matters has existed a long time, there is a tendency from the dread of pain, to cause a diminution or want of sexual desire, and this feeling when further intensified, causes even sexual repugnance.

The health of such patients generally breaks down, and there is nervous exhaustion, aggravated by time, especially if the female is still subjected to frequent attempts at intercourse.

Treatment.—In the first place there must be physiological rest for a time, *i.e.*, until treatment has been had recourse to, and the sensitiveness dimished. This is somewhat difficult to enjoin, as it is in the newly married we most often have the disease to treat. Nevertheless, strict abstinence from intercourse must be insisted upon. Let the patient rest in bed, or in the recumbent posture, and have frequent warm hip baths, and bathe the vulva with sedative lotions, such as borax, lead, hydrocyanic acid with opium, or soda. Afterwards use vaginal injections, made from the above-mentioned drugs, or carbolic acid injections. We may also try if sedative medicated pessaries can be tolerated, These should contain either morphia, belladonna, aconite, conium, or cocaine ; or ointments of the same drugs may be used. If they are not well borne it will be

advisable to introduce a morphia suppository into the rectum. At the same time treat the general health by giving tonics, or a course of bromides, following with quinine, iron, strychnine, or Easton's syrup.

If there are any fissures, abrasions, ulcerations, or sensitive red patches, they can be treated by applying strong carbolic acid, and this be followed up with water dressings, and rest as before. In all cases cleanliness is of the first importance. For fissures and abrasions slightly touching them with nitrate of silver, and using lead lotion is sufficient to effect a cure. For sensitive nodules or spots, which are chiefly about the carunculæ myrtiformes, we may excise them boldly with scissors, taking care to control the hœmorrhage, which occurs afterwards; then a dressing of oiled lint, kept in position by a bandage, will complete the cure.

After we have fulfilled all these conditions, we may find that there is still some spasmodic closure during intercourse, in which case we had better put the patient under an anæsthetic, and resort to dilatation of the vagina, especially in the region of the sphincter, and here it is sometimes advisable to cut the fourchette a little, in imitation of what happens during a first labour on the passage of the child's head. We may introduce a trivalve speculum, always beginning with the smallest size, and increasing steadily until the largest size can be passed; or instead, use a vulcanite dilator of graduated sizes. We may also try to overstretch the sphincter vaginœ, by inserting

two or three fingers of both hands, and then forcibly stretching the parts. After having accomplished this, it is often found necessary to use a dilator an hour or two a day for some time, to diminish the sensibility of the parts, by keeping up distension, and accustoming the vagina to contact.

After the cure is complete, it is well to instruct the patient to smear the vulva with cold cream, vaseline, or other lubricant before attempts at intercourse.

VI.—**Tumours of vagina or uterus, and deformity of bones of the pelvis.**—The tumours which are situated on the vulva, such as hypertrophy of the labia and nymphœ, œdema, elephantiasis, oozing tumour, condylomata, lupus and cancer, all impede the act of coition, but do not actually prevent copulation, and, moreover, some of the above diseases are remediable, but their treatment here is foreign to the plan of this manual.

When the bones of the pelvis are so deformed as to diminish the vaginal orifice so much that copulation cannot take place, nothing can be done, and such females ought to be interdicted from entering into the marriage state.

The tumours of the vagina likely to cause impotence are sarcomatous, fibroid, or cystic tumours ; but they are rarely met with. The cystic tumours must not be confounded with recto-vaginal hernia, or a vesico-vaginal one. When we have diagnosed a cystic

tumour, we ought to puncture it ; the fluid that runs out is watery and slightly sticky or tenacious. After the cyst has been emptied, wash it with tincture of iodine, nitrate of silver, or anything which will destroy the lining membrane, so that it cannot secrete any more fluid, and thus fill up again. In some favourable cases the cyst may be dissected out, and removed entire.

The fibrous and the sarcomatous tumours, if favourably placed, and pedunculated, may be removed by the ecraseur. If they cannot be reached in this way, or have a broad base (sessile), not much good, if any, can be done by interference.

Uterine tumours can only cause impotence, when they pass into the vagina, and block up the passage. Operative measures are necessary for the successful treatment of these tumours.

Epithelioma of the vagina does not cause impotence, but there is so much pain and hœmorrhage on and after coition, that sexual intercourse must be strictly interdicted.

Chapter XV.

STERILITY.

IN THE FEMALE.

By this term is meant an incapacity in any female to conceive, though copulation may take place in a natural manner, and be accompanied with all the apparent conditions of success. From this, and from the statements in the last chapter, it follows that a female may be impotent and not necessarily sterile, and though sterile yet not impotent.

Sterility in the female has been a subject of great interest and importance from the earliest periods, for we find frequent mention of it in the works of ancient writers and down to the present day. Formerly a female who was sterile had to suffer opprobium, and was often forbad the society of women. The sufferer has not only to bear this reproach, but the inability to conceive leads to much marital unhappiness, and where property or titles are at stake, an important question arises as to the curability or not of a sterile woman. The maternal instinct is so strong, and the longing for

and love of children so overpowering, that the sterile wife is most anxious that something should be done towards making her like the normally constituted of her sex in this respect. There have been instances where a woman is sterile with one husband, and yet bears children with a second husband, also in a case of a divorce or separation from other causes, both the parties have been capable of producing offspring, he through another woman, and she by another man.

In all countries, and in all ages, there is always a certain proportion of the female sex who are sterile. It seems to be more common in hot than in temperate or cold climates ; and more common among the wealthy classes than in those who have to work hard for a living. It would appear from the writings of those who have made this branch of the subject a special study, that the abuse of baths, venereal pleasures, high living, hereditary and debilitating diseases generally, are the chief causes in a large number of the sterile. Among the rich the frequent consanguineous marriages may perhaps have something to do with it in addition to the above. There can be no doubt that women who abuse themselves, or give way to excessive intercourse are very subject to sterility, and this partly explains the well-known fact that prostitutes are invariably sterile. In the great majority of cases where a married couple continue without offspring, and are of proper age, and in ordinary health, it is the woman who is most frequently the sterile partner.

There are two kinds of natural or physiological sterility, the first is in females before they have arrived at puberty, and the second is after they have passed the climateric period or change of life. To these may be added in a less degree, when women are suckling, particularly during the few months after parturition, because then the vital forces are concentrated on the organs of lactation.

Causes.—They are very numerous and varied ; in some cases there is no clearly ascertainable lesion or pathological condition, which can be discovered, but the state is variously described as want of aptitude, frigidity, incompatability, &c. Women who are masculine in their nature, broad shouldered, with small and illformed breasts, and hair on the chin and upper lip are generally barren, so also are females, who have only a scanty discharge at their menstrual periods. We frequently notice though that many women are fruitful who are tall and masculine, and others who have scanty discharge during menstruation, and women of frigidity of constitution, cold and unsociable, and indifferent to the sexual act ; since fertility does not depend on the volition of the woman, or that she must necessarily have pleasure during the conjugal embrace, as many instances are on record where impregnation has taken place when the female has had great aversion to the act, or where she has tried to prevent copulation. Also many women have become pregnant from intercourse without their knowledge, as during profound

sleep, or under the influence of an anæsthetic. On the other hand we sometimes meet with cases of sterility where the female to all appearances is perfectly healthy, and all the organs are in good condition, and the female is sufficiently ardent in her affections.

In the majority of cases there is some conjenital cause. By careful examination, and considering well the history of the case as regards the catamenia, &c., we may arrive at a considerable amount of certainty as to the causation, and consequently as to whether we can hold out any hopes of cure or not.

Amongst the numerous causes may be mentioned the following :—Absence or disease of the ovaries ; disease or obliteration of the fallopian tubes, through adhesive inflammation, or other causes ; absence, rudimentary condition, or diseases of the womb ; anteversion, anteflexion, retroversion, retroflexion, or occlusion of the womb ; acrid leucorrheal discharges, and the many causes mentioned in the previous chapter on impotence. The ovum, even when it is impregnated, and has descended through the fallopian tubes to the uterus, may fail to become fixed to the uterine wall, and in this way be expelled during menstruation. The cervix uteri may be long and narrow, rendering the cervical canal tortuous, and small in calibre ; the os tincœ may be obliterated or reduced to merely a pin-hole, preventing the semen from finding its way to the ovary. The character of the secretions and discharges from the genital organs may be acrid, as in leucorrhœa,

and destroy the fertility of the semen, or the mucous secretion may be so thick and tenacious as to block up entirely the os uteri, thus causing sterility.

Some women are sterile only for a time, as in many instances of females who have become pregnant after an interval of ten or more years. Anne of Austria became the mother of Louis XIV. after being married twenty-two years; similar instances are cited by Drs. Tanner, Edis, Lee, and others.

By far the commonest and most unquestionable cause is that of absence, or great irregularity, of the menstruation. Thus, excessive or too scanty menstruation, or a profuse leucorrheal discharge, is in most cases the real cause of sterility. A woman may also be too stout, or there may be a want of consonance between husband and wife—*i.e.*, the female may approach too near the same constitution and temperament as the male for procreative purposes. The attributes of the female should be complementary to those of the male, to make the union as perfect as possible. Sterile women do not menstruate well, for, as a rule, they are generally pallid, or fat and fleshy, and are too ardent or too cold and phlegmatic in love or "durante coitu." Fruitful women, on the other hand, are mostly of medium size or small, broad across the hips, with dark complexion, well-developed and projecting breasts, and wombs of medium consistency, and they menstruate freely and well.

As a general law, if a female does not conceive

within three, or at most four years after marriage, we may diagnose the case as sterility from one or more of the above-mentioned causes, as only a very small percentage of married women after that period become fecundated for the first time.

It will be instructive at this stage to give the results of Dr. Marion Sims' observations of the facts which are essential to fertility, viz. :

1.—It is only during the menstrual life of a female that conception is possible.

2.—Menstruation should be of such a character as to indicate an healthy state of the uterine cavity.

3.—The os and cervix uteri should be sufficiently open and pervious to allow the free exit of the menstrual flux, and also the easy entrance of the seminal fluid.

4.—The cervix uteri should be of proper form, shape, density, and size.

5.—The uterus should be in its normal position, and not anteverted, anteflexed, retroverted, retroflexed, at least not to an acute degree.

6.—The vagina should be able to receive and to retain the ejaculated seminal fluid.

7.—Semen, with living spermatozoa, should be deposited in the vagina at the proper time.

8.—The secretions of the cervix and vagina should not poison or destroy the vitality of the spermatozoa.

If any of these conditions are not present sterility will almost invariably result. It is for the physician to endeavour to rectify them as far as practicable, though, with so much uncertainty as to the causes of sterility, it will be evident how unreliable some of our remedies must be, especially in those cases where the internal organs are in a state of chronic disease, such, for instance, as adherent fallopian tubes from some antecedent peritonitis, or where the fimbriated extremity of the tube is destroyed. Although there will always be a proportion of incurable and hopeless cases, such are becoming, under more exact observation and treatment, fewer in number. It is important to indicate in a concise manner the chief modes of treatment, but in such a work as this we cannot discuss ovarian and other serious diseases of women, where the question of sterility would be only of secondary interest to the more important primary disease.

Treatment.—Putting aside such cases as imperforate hymen, &c., which have been treated in the chapter on impotence, it will perhaps be well to glance at what may be termed psychical and general causes, as where the female is subject to too excessive an ardour in the genital act. Here it would be well to order physical exercises, long walks, baths, light unstimulating food, cooling drinks, with, perhaps, anaphrodisiac remedies, as the bromides, camphor, conium, salines, as well as nervine and vascular sedatives. When the condition is from too frequent

and repeated intercourse, the treatment is the same as already described, and abstention from coitus for a time should be ordered, afterwards only a moderate degree of indulgence. Occasionally we meet with sterility from too cold and phlegmatic a constitution in the woman, who is quite indifferent to the sexual act; here the difficulty is to arouse the natural desire for it. Recommend sea or country air, highly seasoned and stimulating food, as eggs, oysters, salmon, game, generous wines in small quantity—in fine, high living; drinking of chalybeate waters, and tonic ferruginous medicines and nervine stimulants; and mixing more in society and attending plays, &c., will all be aids to overcoming this phase of constitution.

If the female is excessively fat, and the genital parts too relaxed in consequence, as well as the physical difficulty from the obesity, we must try to cure the obesity by abstention from wine, beer, milk, sugar, butter, soup, beans, peas, potatoes, rice, sago, arrow-root, tapioca, corn flour, and fine wheaten bread; order plenty of exercise, and strengthen the genital parts by tonic injections, and frictions across the hypogastric region with rough towels, or stimulating liniments, or the employment of massage. Internally we may give tonics, as strychnine, belladonna, magnesia, ergot, Fellows' syrup, &c., and keep the bowels very regular by means of mineral waters or seidlitz powders.

Amenorrhœa.—If from retention or occlusion of

the os uteri, the os must be punctured, and after cautiously evacuating retained menses, antiseptic injections should be used.

The most common form is where the menses have been established and regular, but have been prematurely arrested. It may arise from a shock of any kind, or from acute disease, or by getting damp and cold during the menstrual molimen, or the flux gets less and less every period, or the periods themselves are at longer and longer irregular intervals ; and it may be scanty or entirely suppressed in anœmia, plethora, albuminuria, phthisis, &c. In all cases we must be careful not to forget the possibility of pregnancy ; hence we should never use the uterine sound until we are sure there is no pregnancy, owing to the great danger of causing abortion, if the female should prove to be pregnant. The treatment will vary as to the cause ; also there is generally some constitutional derangement resulting from the suppression.

If from plethora we must give acids, taraxacum, iodides, bromides, and other depletory drugs, with the use of warm baths and leeches to the os uteri, or resort to cupping over sacrum, so as to induce an increased flow of blood to the uterus and ovaries, near the time when there are symptoms of the menstrual molimen : during what would be the interval, the patient must be put on a spare diet, abstain from stimulants, and take purgatives, and have regular exercise daily and a course of Turkish baths.

If from anœmia (poor blood), we must give tonics, nourishing food, order change of air, gentle exercise, and pay attention to the bowels. When near the approach of the period, or symptoms of the menstrual molimen present, order mustard and hot water foot-baths, and in some cases galvanism.

Iron in some form is absolutely necessary, but it should not constipate. The preparations of this blood tonic are endless. The following two prescriptions, however, will suffice for all ordinary cases, thus :—

℞ Magnesiæ Sulphatis, ℥ ss.
Ferri Sulphatis, gr. xx.
Acidi Sulphurici Arom, ʒ ii.
Aquæ Chloroformi ad, ℥ viii.

A tablespoonful to be taken three times a day immediately after meals, or—

℞ Ferri Arseniatis, gr. iv.
Ext. gentianœ, ʒ i.—Mix.

Divide into 36 pills, and order two to be taken three times a day.

We may give Wyeth's dialysed iron (Burroughs) simply in water, and as it is tasteless, and does not constipate, it is at once an elegant and efficacious remedy. In certain cases it will be necessary to combine with the iron certain sedatives or antispasmodics. If these fail we should then give the various emmenogogues a trial, which act specially on the uterus and its appendages, but must only be used as a last resort. There is one drug which,

next to iron, answers very well, viz., strychnine; it may be combined with iron, and given in minute doses.

Certain remedies are given to produce an irritation of the uterus and surrounding parts, as injecting aloes and water into the rectum or vagina; alternate hot and chilled water or stimulant injections; warm hip baths. Another remedy is also very efficacious, viz., passing into the womb one of Greenhalgh's india-rubber stem pessaries. Dr. Braithwaite, of Leeds, recommends that "the stem, carefully washed in carbolised water, should be introduced, and left in position a week before menstruation is due, or supposed to be due; usually a hœmorrhage will result in a few days, but the stem should remain *in situ*, whether it does or not." Mr. Duke's galvanic stem pessary is also admirable for the same purpose. That hydra-headed complaint, hysteria, is a common complication of this form, and the physician is more or less embarrassed on this account in his diagnosis and treatment.

If there is vicarious menstruation, a discharge of whites instead of the menses, or a sanious flow from another part of the body other than the womb, it has been noticed to come from the nose, lungs, stomach, ulcers and wounds, and the mucous membrane of the vagina. The treatment must be directed to the general health of the patient, and attention to all the secretory and excretory organs, and ordering of uterine tonics (aletris cordial), tabloids of permanganate of potash (Burroughs), and warm hip-baths at the approach of the period.

Menorrhagia or Profuse Menstruation.—The sanguineous flow may almost resemble "flooding," so long may it continue, and so frequent may be its onset. The causes are found either in the peculiar constitution of the patient, or in some lesion of the internal organs of generation. Anything which produces a deleterious change in the blood, as Bright's disease, disease of the spleen, tuberculosis, prolonged lactation, plethora, undue excitement at the monthly period, excessive sexual intercourse, living too luxuriously, and leading too indolent a life, or the abuse of too frequent hot-baths. The second of these detriments might be from inflammation of the uterus or ovaries, displacements of the womb, tumours, ovarian or uterine, or from various forms of ulceration in the womb and cervix. The womb is nearly always enlarged and heavier than natural, while its tissue is soft and flabby.

By the aid of the speculum and abdominal palpation, we may, in most cases, find out what produces the excessive flow, and also see what condition the parts are in, whether there is pain on pressure, or undue sensibility, &c.

The treatment must necessarily be various, but as a rule, the congested state of the womb ought to engage our attention first. To alter its condition we give saline purgatives, and if the abdominal viscera are congested we also administer pills containing aloes and podophyllin with extract of colchicum. Frequently anœmia will have been caused by the loss of blood,

and then it is best to order quinine, iron, and perhaps a little digitalis. In almost every case we shall have to give ergot in some form, and, as a rule, it is tolerated better, and for a longer period, when it is in the form of pill or tabloid ; this does not produce sickness, which the liquid preparation so often does. It is most important to insist on strict rest in the prone position during the period, and avoid all excitement. If at the menstrual period there is so much excess in the flow as to give rise to danger it will be well to plug the vagina, and use astringents freely, such as hazeline, while giving large doses of ergot. During the interval the patient should try a change of air, mineral waters, spare diet, no stimulants, and physiological rest by abstention from coitus.

If menorrhagia proceeds from the presence of tumours in the womb, then have recourse to the appropriate treatment for the removal of the tumours, but it is not within the province of this book to treat of such cases.

Dysmenorrhœa, or Painful Menstruation.— This arises either from a narrowing of the cervical canal, an excessive sensibility of the uterus, or where there is an exfoliation of the lining membrane of the womb, called membranous dysmenorrhœa. In sterility due to dysmenorrhœa, we may try dilatation of the cervical canal by a series of graduated bougies. This requires great care, and several days usually elapse, before we are able to pass one of the larger

sizes; the operation of passing them ought to be nearly painless, if care is used.

In the case of supersensitiveness or irritability of the womb, we prescribe sedatives internally, bromide of potassium, combined with biniodide of mercury, and, if necessary, small doses of opium or syrup of white poppies, with a mild farinaceous diet. Externally we use injections of a soothing nature, as infusions of marsh mallow and poppy heads, or henbane in warm water, or simply warm water containing bicarbonate of soda, or borax, and alkaline warm hip baths; or medicated pessaries of belladonna, camphor, opium, conium, henbane, &c., or charged vaginal tampons.

In membranous dysmenorrhœa, which is a frequent cause of sterility, owing to the unhealthy state of the uterine cavity, the impregnated ovum is not able to become fixed on the uterine wall. Before we begin active treatment, it will be as well to examine carefully all the shreds and clots that are passed, to make sure that it is not an abortion we have to deal with from the above-mentioned cause. In any case it is necessary to induce a healthy and tonic condition of the mucous membrane. Inject into the cavity of the womb a solution of nitrate of silver, from one to three grains to the ounce of water, or equal parts of glycerine and carbolic acid; or we may pass sticks of nitrate of silver and potash, one and a half grains of each, as far as the fundus uteri, where they are allowed to dissolve. Chloride and sulphate of zinc, iodine, and

the perchloride of iron have been used for a like purpose. The applications are followed in all cases by hip baths, and tonic vaginal injections, with rest in bed, until the pain has been relieved. This treatment, when the hygienic surroundings are good, tonic medicines taken, and abdominal support not forgotten, will in most cases be successful.

Retroversion.—If sterility is due to displacement or reflexions of the womb, endeavour by the use of the uterine sound and carefully adapted pessaries to replace the organ in its normal position and inclination. Greenhalgh's india-rubber elastic spring pessaries can easily be bent and shaped to meet each individual case. Moreover they are easily introduced and put into position. They are very useful in retroversion and prolapsus uteri, and in sterility from this cause, they will permit the easy entrance of seminal fluid to the uterus, by bringing it to its proper position. We may also recommend the parties to choose the best periods for a successful and fruitful coitus, viz., just before or immediately following the menstrual period. Or one may follow the well-known advice of Lucretius, who recommended the "coitus more ferarum quadrupedumque rita," or in other words, the female assumes the knee and shoulder position, which brings the cervical canal more into the proper axis for the free entrance of the semen.

Anteversion.—This does not often cause sterility,

because after the female has been lying down in the dorsal position for a little time, the body of the uterus will generally fall back into its place, except there are adhesions or shortening of the ligaments from inflammatory action, which must be combated by appropriate treatment.

Anteflexion.—It is a very frequent cause both of sterility and dyspareunia, signifying much pain during coitus. The womb is found variously flexed, for the body of it may be bent forwards, while the cervix is normal, or the cervix lie forwards and the body be normal, or both cervix and body be directed forwards. In any of these, if the flexion is at an acute angle, the free entrance of the semen is prevented. First ascertain if there are any adhesions, which may render the cure difficult or impossible, or that the defect is not congenital, for generally in the latter case, the uterus itself is defective and rudimentary, and treatment is hopeless. If there are no adhesions, we may begin by relieving the attendant congestion, or local inflammation of the uterus, by the aid of baths, venœsection, antiphlogistic medicines, and mucilaginous vaginal injections.

After doing this, reposition of the womb must be attempted. Having had the rectum and bladder thoroughly emptied, place the patient in the dorsal position, with the abdominal muscles relaxed by drawing up the legs, and raising the buttocks higher than the rest of the body. While the patient is so placed, pass

into the vagina one or two fingers, and draw down the os and cervix, at the same time pushing up the body or fundus uteri by manual pressure on the abdominal parietes. We may use a repositor, an instrument something of the nature of a hook and concave lever, but the fingers are preferable if they can be used. When the womb is replaced in its normal axis, properly applied and suitable pessaries must be worn, but these, of whatever shape or material, should be taken out occasionally and washed, the patient being in the prone position until the pessary is replaced again. She should also wear a carefully adapted abdominal belt, and vaginal injections of permanganate of potash, or pinus canadensis should be used freely during the interval between the periods. Internally give tonics, such as Fellows' syrup, or acids and cinchona, or, what I have found to be extremely useful, the aletris cordial. Tight lacing, and heavy skirts which are only supported by the loins must be avoided, as both tend to drag the body of the womb downward and forward.

Retroflexion.—The opposite condition to the last, the body being bent backwards at an angle from the cervix, or both cervix and body being directed backwards; as in the last case we must reduce the attendant congestion, &c., by the same means. After emptying the bowels and bladder, place the patient in the genu-pectoral position, and try reposition, and put in a stem pessary to straighten the flexed uterus, and

follow the general directions detailed under anteflexion.

Stricture, or Narrowing of the Cervical Canal.—This is a very frequent cause of sterility. The cervix may be almost impermeable, or completely occluded, or the cervix be much elongated. We ought to make an attempt to pass the uterine sound, and failing this, puncture; but this is rather dangerous if due precautions are not taken. The patient should begin to use hot hip baths, and take salines or purgatives a week before operation. Pass a warmed and well-oiled sound into the depression within the os; by steady and continuous pressure, the resistance will in time be overcome, and the sound will pass. After which we widen the canal by means of sea tangle or sponge tents, or an Uterine Dilator. The occasional wearing of an intra-uterine stem will complete the cure. Now and then we meet with cases in which there is a *conical cervix*, with the entrance of the os as small as a pin point. When this is the condition, we use the uterine scissors for dividing the os and servix bi-laterally, taking care that the wounded parts heal only by second intention, which is effected by keeping the cut margins separated, and obviating inflammatory consequences by perfect rest, hot baths, fomentations and demulcent drinks.

Leucorrhœa or Whites.—It does not, as a rule, cause sterility, if the fluid secreted be not of so acrid a character as to effectually destroy the vitality of the

spermatozoa in the seminal fluid. If we find by chemical and microscopical tests that it is acid or contains unhealthy pus corpuscles, we combat this condition by the employment of alkaline and tonic injections combined with glycerine. The pinus canadensis and the abies canadensis, a fluid extract from the bark of the American hemlock tree ; or the valoid fluid extract of hydrastis combined with bismuth and glycerine ; pinol (Burroughs) ; iodoform and tannin ; common red wine; dilute carbolic acid ; and the common but useful lotions made from alum, zinc, borax, lead acetate, or goulard water, are all of great service in correcting the unhealthy and debilitating secretion.

Give internally general tonics, as iron, quinine, strychnine, ergot, logwood, cod liver oil and maltine (Kepler), and Fellows' syrup of the compound hypophosphites Order change of air, nourishing diet, chalybeate and alterative mineral waters, great cleanliness, with frequent sponging, especially of the genital parts. Experience has shown that internal remedies are not of much use without careful attention to local treatment.

If the leucorrhœal secretion comes from the cervical canal, introduce a stick of nitrate of silver, and touch the surrounding parts with it, repeating this a few times every week. If there is induration of the cervix paint it well with iodised phenol in the canal as well as around the cervix.

Endometritis or Inflammation of lining membrance of the Uterus.—This is also a frequent

cause of sterility. The inflammation may be either in the cervical canal or in the body of the womb, or both. The first is most commonly met with in actual practice, and gives rise to leucorrhœa, through which the canal is filled with a thick, tenacious, mucous secretion preventing the ingress of the semen and destroying its vitality.

There is often a dull aching pain in the groins and back and a feeling of dragging and bearing down in the pelvis, and occasionally a difficulty in micturition. The bowels are usually constipated, and before long general and nervous debility, with hysterical symptoms supervene. Pay particular attention to the general health, and rectify any mal-nutrition from indigestion, regulate the bowels, and give saline and general tonic medicines.

Soon after a menstrual period, we must dilate the cervical canal and clear away all mucous secretion from its surface by cotton wool or by a sponge attached to a probe, or by means of a syringe. The frequent use previous to this of vaginal injections, night and morning, of borax or bicarbonate of soda in warm water will cleanse the parts, and reduce any irritation and congestion of the cervix. After cleansing the canal, apply direct to the surface of the canal either pure glycerine or equal parts of it and carbolic acid; this, if used once a week and at an interval of twelve days during the menstrual period, will in most cases prove curative. Sometimes it is necessary to use an

agent stronger than the one just mentioned. Numbers of remedies have been recommended. Among the best are nitric acid, nitrate of silver, linimentum iodi, acid nitrate of mercury, tannin and glycerine, liquor ferri perchloridi, potassa fusa, chromic acid, and the galvano, or the actual, cautery, which have all been used with good results in some obstinate cases. A very valuable and successful agent is iodised phenol, the recipe of which is : linimentum iodi, carbolic acid, and glycerine, of each equal parts. By this combination we get the stimulant and alterative effects of the iodine, with the alterative, antiseptic, curative, anæsthetic properties of the glycerine and carbolic acid. If it fails to cure, which rarely happens, it will always, even in very intractable cases, mitigate the evil effects of the disease.

Endometritis of the Body of the Womb.—This disease is much more difficult to treat than the last. It is also a frequent cause of sterility, for the secretions from the lining membrane of the fundus uteri are almost always muco-purulent, and this quickly destroys the vitality of the spermatozoa. In slighter cases of endometritis, where perhaps the semen has succeeded in fecundating the ovum, yet owing to the diseased membrane the germ cannot become fixed to the womb, there is always leucorrhœa or whites, and the discharge is slightly tinged with blood, but is not so viscid as in the last-mentioned disease, though it is more acrid, and causes greater irritation to the

vaginal passages and vulva. Menstruation is painful or irregular, and there is usually some displacement of the womb, which is enlarged and tender on pressure, and all the symptoms accompanying cervical endometritis are intensified here. The constitution also suffers more, nervous disorders are commoner, neuralgia, hysteria, and disorders of the alimentary tract more frequent, with constipation and painful micturition. In well marked cases of this disease, especially where the discharge is decidedly muco-purulent and of long standing, the cure is likely to be prolonged and obstinate, as the symptoms do not readily yield to treatment. However, with rest, care, and perseverance we can give great relief, and produce a healthy action of the lining membrane. When the discharge approaches more to a mucous than to a muco-purulent condition, we can give good hopes of a permanent cure. We must insist on the patient having a fair amount of rest, not too much walking or other exercise, though it is not necessary to be entirely confined to the house, a plentiful supply of nutritious but not stimulating food, which must be varied from day to day, and it is advisable for the patient to be strictly temperate as regards alcohol, except in rare cases where it is given with a view to aid digestion. At the same time it will be found necessary to give medicines to combat the constitutional effects. The mineral waters will act beneficially on the liver and bowels, while the bromides, with some sedatives, as conium, belladonna, hyoscyamus, and

camphor, will relieve neuralgia or headache and procure sleep ; and for the flatulent distension of the abdomen, so common a feature in this disease, we require to add to our remedies one or more of the antispasmodics, as valerian, assafœtida, or the essential oils, as peppermint, rue, &c. Strychnine is a very valuable remedy in these cases, and seems to act almost specifically on the uterus by its powerful tonic effect. If the bowels are regular it may be given in the form of Fellows' syrup, or we may give drachm doses of aletris (star grass), with five drop doses of strychnine.

If the bowels do not act after giving sufficient purgatives, it is better to give enemata of warm water and soap, or turpentine and castor oil in thin gruel, which treatment not only empties the lower bowel, but does good locally to the uterus.

Just before going to bed the patient should take a warm bath, and remain in it from half an hour to an hour. A warm vaginal injection afterwards will greatly relieve irritation and congestion of the uterus and neighbouring parts. The injections should contain borax, bicarbonate of soda, or permanganate of potash, and ought to be used night and morning to keep the passages free from all acrid secretions. Where there is a great deal of pain locally, we must resort to medicated pessaries or vaginal tampons containing strong sedatives, as atropine, morphia, opium, cocaine, or belladonna ; or we may also try fomentations and poultices to the abdomen, or a mustard plaster, turpentine stupes, or

a blister as a counter irritant. I have often found that a large belladonna plaster evenly applied to the lumbar and sacral region gives great relief, and acts as a comfortable support as well.

When we have lessened the pain and reduced the congestion of the uterus, we may proceed to apply our remedies direct to the lining membrane of the womb, after previous dilatation of cervical canal with sponge or laminaria tents. For this purpose we use an intra-uterine canula, which is passed into the cervical canal to the cavity of the womb, to protect the cervix from the action of the agents used, and also to facilitate the introduction of the probe, cotton wool (Lawton), sponge or whatever else is employed in smearing or swabbing thoroughly the whole of the mucous membrane with the ingredient used. Before any applications are used it is very necessary to take a probe wrapped with cotton wool and mop out and dry the uterine cavity, so that the drug used acts directly on the mucous membrane. The same applications can be resorted to as in cervical endometritis, but those which can be best relied upon are carbolic acid and glycerine, either alone or combined with iodine, a strong solution of corrosive sublimate, solution of chromic acid, fuming nitric acid. If we wish to use remedies in the solid form, they can be made up with lanoline, or other simple unguent, and, by the aid of Dr. Barnes' ointment positor, we can apply the ointment to the fundus uteri,

when, melting with the heat of the body, it will spread all over the mucous membrane. If it is necessary we can repeat the aforementioned local remedies once a week, except on the approach of a menstrual period, when we allow twelve days or so to elapse. In all these applications we must protect the vaginal *cul de sac* with cotton wool, to prevent any of the agents used from injuring the vagina, and it will be well to syringe the passage with an alkaline solution to neutralize any unavoidable action of the agent on the mucous membrane. During this active treatment the general constitutional remedies, and the regular use of vaginal injections mentioned previously must not be forgotten.

Salpingitis.—Inflammation of the Fallopian Tubes.—This causes sterility from adhesion and impermeability of the tubes. In many of these cases it has resulted from peritonitis, and then the prognosis is not favourable, as the condition is almost if not quite irremediable. The only hope of any cure lies in treating the general health, using counter irritants to the abdomen as mustard plasters, painting with iodine, &c., and careful and repeated inunctions with some preparation of mercury, and gentle steady rubbing over the fallopian tubes with a view to aid absorption of the inflammatory products. A warm bath with extract of pumilio pine in it may be used every other night, the patient remaining in it about one hour, the temperature of the water being kept up the whole time; on the following morning a

tepid sponge bath, or even cold water, provided the reaction is quick enough, and does not produce chilliness and shivering, which is followed in some females by a headache. Cold baths should not be had recourse to during or immediately before menstruation as they might check the flow, or set up some form of inflammation.

Some operators have advised in cases of obstruction of the fallopian tubes to attempt passing a small probe, bougie, or silver catheter through the oviducts or fallopian tubes from the fundus of the womb, but it is obvious that the idea is more theoretical and fanciful than practical, and unless extremely careful one might easily pass the instrument through the uterine wall, and into the peritoneal cavity, or seriously injure the uterine tissue. The suggestion of such an operation does not, however, merit a moment's consideration as it is never likely to be successfully performed, and it is, moreover, attended with great danger.

Chronic ovaritis.—This may cause sterility from the products of inflammation having covered the fallopian tubes and ovaries with lymph, which prevents the ovules from bursting their way through—a condition that renders fecundation impossible. The ovaries are enlarged and tender on pressure, and menstruation is very painful.

The only treatment likely to be of any benefit is the application of leeches or blisters to the ovaries,

especially where there is pain on pressure of the abdominal wall. In a few days after apply fomentations or poultices, and afterwards treat the affection by mercurial inunctions, massage, warm baths, vaginal injections of warm water with some bland amylaceous ingredient. Give bromide or iodide of potassium or sodium, combined with vegetable tonics, and direct as much rest and support as possible.

Tumours.—The only kind likely to be commonly met with is "polypus" of the cervical canal. Fibroid tumours are very rare indeed in those who have never had children.

A polypus causes sterility by obstructing the cervical canal, and preventing the passage of semen. The chief symptom is an excessive menstrual discharge—menorrhagia, and the discharge often has an offensive odour; leucorrhœa is also another prominent sign, and the discharge is frequently tinged with blood, though in cases of small polypi it may be watery.

When the presence of a polypus has been satisfactorily made out, we require to dilate the cervical canal, and, if practicable, seize the fleshy growth with a vulsellum, and draw it down, then by means of a wire-rope ecraseur passed over vulsellum to surround the base of the tumour, and on tightening the wire-loop the pedicle of the tumour is excised, and brought away with the instrument: by the use of the ecraseur there is very little bleeding. Afterwards the place

which the polypus has been removed from, may be painted over with iodised phenol, which will prevent a recurrence of the tumour, and excite a healthier action in the mucous membrane. Small fibroids are removed in the same way.

Syphilis and Gonorrhœa are both among the causes of sterility. In the former of the two the fecundated ovule may be blighted as soon as conception takes place, and be expelled at the next menstrual period, or the affection give rise to early abortions, so that tho patient may think she has never conceived. We must look well to the past history of both husband and wife, and if there are evidences of syphilis, it will be necessary to put them both on the anti-syphilitic treatment, which will rectify the morbid condition, and insure the viability of the fecundated ovule.

Gonorrhœa may extend to the uterus and fallopian tubes, and cause endo-metritis, salpingitis, or pelvo-peritonitis and in this way produce sterility. The treatment here would be that of the part affected, combined with the after treatment of gonorrhœa, and the free use of vaginal injections of permanganate of potash, and change of air, and for some time abstention from all sources of sexual excitement.

In conclusion I repeat that the majority of cases of sterility are curable, if only due care is used in making a correct diagnosis, and time and patience being given

in carrying out the treatment of the case, regulating the general health, and removing or mitigating all predisposing and exciting causes ; thus placing the patient in the most favourable condition for healthy ovulation.

FINIS.

ERRATA.

—o—

Page 1, for "blennorrhagia" read *blenorrhagia.*

Page 16, line 3, instead of "tincture of steel" read *hazeline.*

Page 2, line 16, instead of "for" read *from.*

Page 18, line 2, for "epidymis" read *epididymi.*

Page 21, for "phytolacea" read *phytolacca.*

Page 65, line 5, for "granulation tissue" read *connective tissue.*

Page 72, line 3, a comma after "pinol."

Page 85, line 6 from the bottom, for "paralysis or seminal vesicles" read *paralysis of seminal vesicles.*

Page 144, line 12, for "an" read *a.*

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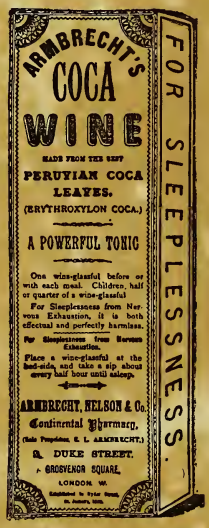
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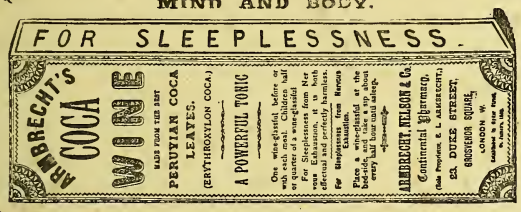
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